









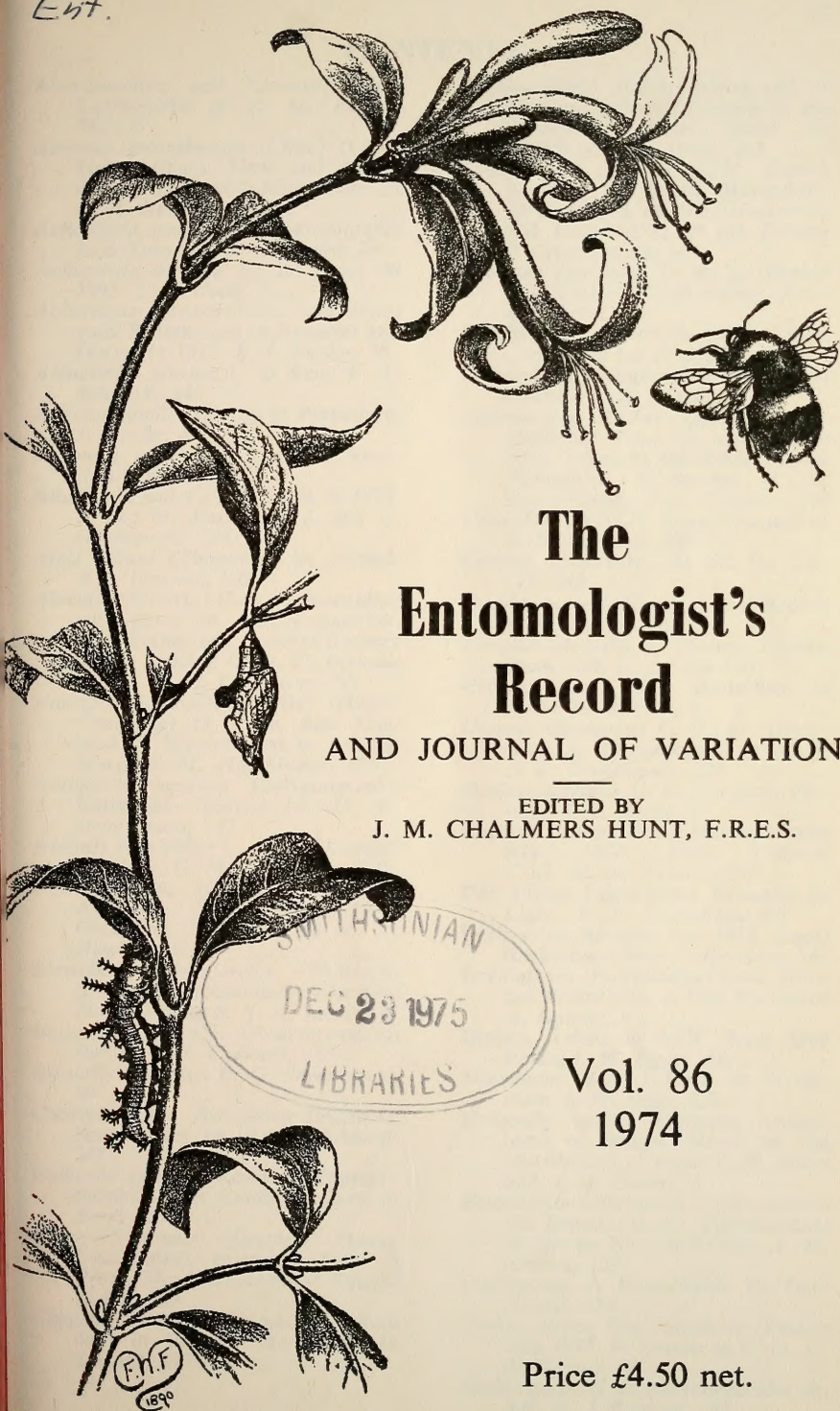




595.7059

Ent.

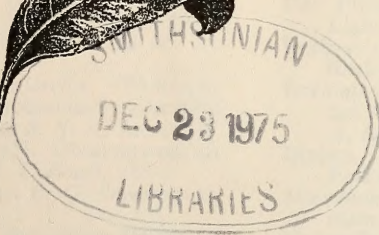
4-14-10



# The Entomologist's Record

AND JOURNAL OF VARIATION

EDITED BY  
J. M. CHALMERS HUNT, F.R.E.S.



Vol. 86  
1974

Price £4.50 net.





# CONTENTS

- Aberdeenshire and Kincardineshire.  
Lepidoptera of R. M. Palmer  
33, 273
- Abraxas grossulariata* (Linn.) (Lep.:  
Geometridae). New and Inade-  
quately Described Aberrations of  
G. E. Hutchinson, 199
- Acherontia atropos* and other migrants  
in S. Devon. Alan Kennard, 24
- Acherontia atropos* L. in Essex in  
1933. R. R. Cook, 5
- Acherontia atropos* Linn. and *Hyles  
gallii* Rottemburg in Somerset and  
Dorset in 1973. B. J. Taylor, 28
- Acherontia atropos* L. in Kent. P. A.  
Sokoloff, 246
- Adela croesella* (Hartig) in Perthshire.  
J. Roche, 54
- Agrotera nemoralis* Scop. in Kent.  
E. S. Bradford, 170
- Albarracin and Vicinity Spain, in 1973.  
J. and M. Dacie and J. and D.  
Greenwood, 208
- Alcis jubata* (Thunberg) in Ireland.  
B. J. Lempke, 169
- Aloeides thyra* (L.) (Lep.: Lycaenidae)  
with notes on Ant Association,  
Distribution and General Ecology  
of the Species. C. G. C. Dickson  
and A. J. M. Claassens, 253
- Andricus lignicollis* (Hartig) (Hym.:  
Cynipidae) in South East Eng-  
land. A Species New to Britain.  
Margaret M. Hutchinson, 158
- Antigonon leptopus* (Polygonaceae).  
Butterflies feeding on D. G.  
Sevastopulo, 247
- Atolmis rubricollis* L. on the Cornish  
Coast. C. G. M. de Worms, 224
- Ayer's Rock, Northern Territory,  
Australia, Nov. 13-15, 1973.  
Observing butterflies at P. C.  
Hawker, 241
- Blastobasis decolorella* Wollaston  
(Lep.: Blastobasidae) Attacking  
Stored Apples S. N. A. Jacobs, 27
- Butterflies in 1973. Observations on  
British C. J. Luckens, 188
- Butterfly trapping. D. G. Sevastopulo,  
60
- Cacoecimorpha pronubana* (Hübner).  
Some notes on. P. A. Sokoloff,  
248
- Callicera spinolae* Rondani (Diptera:  
Syrphidae) in Cambridgeshire. I.  
Perry, 93
- Capys alphaeus* (Cramer) (Lep.:  
Lycaenidae) emerging from a  
*Protea* Head in Germany. Eduard  
Hofer, 169
- Cheilosia sahlbergi* (Diptera: Syrphi-  
dae) in Britain. Martin C. D.  
Speight, 193
- Cionini (Col.) Mainly arising out of  
Mr Cunningham's Findings in the  
Portsmouth Area. Notes on  
British A. A. Allen, 265
- Cionus* and *Cleopus* (Col.: Curcu-  
lionidae) in South Hampshire,  
1973. Studies on the Occurrence  
and Distribution of the Genera  
P. Cunningham, 184
- Conistra rubiginea* D. & S. (Dotted  
Chestnut) in North Surrey. Peter  
A. Martin, 168
- Conservation of British Insects. Joint  
Committee for the, 164
- Cornwall. Lepidoptera of South and  
Central J. E. Marshall, 224
- Cosmetopus* Becker (Dipt.: Scato-  
phagidae) New to the British  
Isles, Taken by the River Test in  
Hampshire. A Species of the  
Boreal Genus. P. J. Chandler, 154
- Craneflies for 1973. Some Records of  
E. G. Hancock, 239
- Current Literature, 30, 62, 96, 125,  
173, 248
- Cryphia muralis* (Forster) in Wiltshire.  
P. M. Heath, 221
- Cucullia absinthii* L. Strange Experi-  
ences with G. A. Ford, 61
- Cyprus, June 1873. Butterflies in  
R. F. Bretherton, 1
- Danaus chrysippus* L. (Lep.: Danai-  
dae). A Tetratological brood of  
D. G. Sevastopulo, 223
- Danaus plexipus* L. in Northern Por-  
tugal. C. L. Boyle, 57
- Dates at Horsell during May and Early  
June 1974. Some Unusual  
C. G. M. de Worms, 222
- Day Flying Lepidoptera Attracted to  
Light. R. F. Bretherton, 93
- Derbyshire Records for 1973. Local  
Rarities and New F. Harrison, 145
- Dermaptera (Forficulidae) from Mexi-  
can Bromeliads. A New Species of  
A. Brindle, 6
- Diptera Taken in M.V. Trap. Day  
Flying L. W. Siggs, 248
- Discoloxia blomeri* Curt. in Hamp-  
shire. L. W. Siggs, 223
- Dragonfly Species (Odonata, Anisop-  
tera) of Bengal. Notes on the  
Distribution of some T. R. Mitra  
and A. R. Lahiri, 73
- Ectoedemia (Dechtiria) erythrogenella*  
(de Joannis) (Lep.: Nepticulidae)  
A Species New to Britain. A. M.  
Emmet, 129
- Emergence. A Remarkable R. Fair-  
clough, 120
- Erebia scipio* Bdv. Southern France  
July 1973. In Search of C. G. M.  
de Worms, 49
- Erebia zapateri* ab. *pseudoneoridas* ab.  
nov. M. J. Percival, 245

- Erioptera pilipes* (Fabricius) (Diptera: Tipulidae). E. G. Hancock, 197
- Etainia sphendamni* Hering, A Correction. A. M. Emmet, 121
- Eublemma ostrina* Hübner in South Devon in 1973. Alan Kennard, 27
- Eupithecia insignata* Hübn. (Pinion Spotted Pug) in Berks. P. A. Davey, 28
- Eupithecia phoeniciata* (Rambur) and *Lithophane leauteri* (Boisduval) in Sussex. Ronald P. Pickering, 29
- Eupithecia phoeniciata* (Rambur) in Kent. I. A. Watkinson, 26
- Eurrhynura perlucidalis* Hübn. and *Parascotia fuliginaria* L. New to Hampshire. T. N. D. Peet, 57
- Gargia, Finnmark, July 1973. M. J. Perceval, 81
- Grecian Butterflies. Distribution of some B. J. Lempke, 222
- Greece. Recent Butterfly Records from A. Koutsaftikis, 15
- Grote in Hildesheim. R. S. Wilkinson, 259
- Hampton Wood, Warwickshire. M.V. Recordings. A. F. J. Gardner, 163
- Hardwoods. A Plea for J. P. Sankey-Barker, 110
- Herse convolvuli L. in Kent. Jamieson C. Little, 9
- Hesperiidae at Tunbridge Wells. Notes on a colony of I. C. Beavis, 221
- Hibernating Larvae. C. G. Lipscomb, 170
- Homotages* Burr and Nomenclatural Status of *Anechura zubovskii* Semenov (Dermaptera). Systematic position of the Genus. V. C. Kapoor, 91
- Hyles gallii* in Cheshire in June 1974. J. Muggleton and G. Kenyon, 247
- Hyles gallii* Rott. in Britain during 1973: an appeal C. G. M. de Worms, 25
- (*Hyles gallii* Rott.) in 1974 The Bedstraw Hawk. B. W. Moore, 221
- Hyles gallii* Rott. Infertility in Female R. F. Bretherton, 123
- Hyles gallii* Rott. in Lincolnshire. R. E. M. Pilcher, 94
- Hyles gallii* Rott. and *Oria musculosa* Hübn. and *Rhyacia simulans* Hufnagel in Oxon. P. J. D. Hugo, 25
- Idaea vulpinaria* Herrich-Schaffer (*rusticata* sensu auct) (Lep.: Geometridae). Discovery of Larvae and Natural Foodplant of B. K. West, 258
- Inachis io* ab. *dyopthalmica* Garb. near Hailsham, Sussex. I. C. Beavis, 221
- Infurcatinea argentimaculella* Stainton in Kent. A Further Record of E. S. Bradford, 170
- Interspecific Competition in Butterflies. C. J. Luckens, 71
- Interspecific Competition in Butterflies. D. G. Sevastopulo, 244
- Lampronia praelatella* (Denis and Schiffermuller, 1775) (Lepidoptera Incurvariidae). The Early Stages of A. M. Emmet, 180
- Lepidochrysops ortygia* (Trimen) Group (Lepidoptera: Lycaenidae) from South West Cape. A New Taxon of the C. G. C. Dickson, 65
- Lepidoptera in Britain during 1973. Collecting C. G. M. de Worms, 97, 137
- Lyn Cwmynach, Merioneth. An Account of the Lepidoptera of the Moorlands near H. B. Young, 10
- Lycaena dispar rutilus* Werneberg. A Chance Meeting at Ravenna, Italy. L. McLeod, 68
- Lycaena phlaeas* L. ab. *radiata* Tutt in the Isle of Wight. T. D. Fearnhough, 248
- Lysandra coridon* (Poda) and *L. bellargus* (Rott.) in North Wales? R. L. H. Dennis, 24
- Macroglossum stellatarum* Linn. from Kent in 1973. I. A. Watkinson, 58
- Macroglossum stellatarum* L., *Plusia gamma* L. and other Migrants in South Devon and The Lizard. C. G. M. de Worms, 223
- Macrolepidoptera at Waterlooville in 1973. T. N. D. Peet, 59
- Macrolepidoptera in West Suffolk in 1973. G. A. Ford, 59
- Maculinea arion* L. in South West Ireland. On the Reported Occurrence of Mark Jeffares, 118
- Majorca. Butterflies of M. J. Perceval, 225
- Maltese Islands. Butterflies of the A. Valletta, 196
- Mango in the Punjab. New Records of Lepidoptera in Malformed Inflorescence of G. S. Sandhu and Joginder Singh, 114
- Meleageria daphnis* D. and S. in Central Spain. M. J. Perceval, 60
- Microlepidoptera. Notes on the H. C. Huggins, 70
- Migrant Lepidoptera in Gloucestershire. R. P. Demuth, 96
- Migrant Lepidoptera in Lincolnshire in 1973. R. E. M. Pilcher, 58
- Migrant Lepidoptera. Some Records of Neville L. Birkett, 95
- Migrants in 1973. Austin Richardson, 124
- Monopis monachella* (Hübner) (Lep.: Tineidae) in Suffolk. H. E. Chipperfield, 28



- Mythimna (Aletia) l-album* (L.) (L-album Wainscot) in Essex. A. J. Dewick, 167
- Neolucia serpentata* (H.-S.) (Lep.: Lycaenidae). P. C. Hawker, 245
- Nepticula aeneella* Heinemann as distinct from *N. oxyacanthella* Stainton. A. M. Emmet, 122
- Nepticulidae II. Notes on some of the British A. M. Emmet, 147
- New Forest Mercury Vapour Light Records for 1973. L. W. Siggs, 115
- Nycterosea obstipata* Fab. at Woking. C. G. M. de Worms, 26
- Odontosia carmelita* Esp. at Tunbridge Wells. I. C. Beavis, 221
- Oncocera (Salebria) obductella* Zeller on North Downs in Kent. I. A. Watkinson, 58
- Ornithoptera (*Schonbergia*) *paradisa* Staud. (Lepidoptera Papilionidae). The Species and forms of the Tailed Birdwing. Jan P. Haugum and A. M. Low, 109
- Pammene luedersiana* Sorhagen (1885). A Tortrix New to Britain. G. H. Youden, 197
- Pantala flavescens* (Fabricius) Odonata: Libellulidae) in Calcutta. Another Record of Migratory Flights of the Dragonfly. *Tridib Ranjan Mitra*, 53
- Papilio demodocus* Esp. (Lep.: Papilionidae). Abnormal Larvae of D. G. Sevastopulo, 224
- Papilio pupae*. Dimorphism in D. G. Sevastopulo, 269
- Parascotia fuliginaria* L. in Worcestershire. The Waved Black Moth. J. E. Green, 92
- Phaonia exoleta* Mg. (Dipt.: Muscidae) New to Ireland. M. C. D. Speight, 246
- Phasis thero* (L.). A Recently Discovered Race of the Cape Lycaenid. C. G. C. Dickson and C. W. Wykeham, 177
- Philereme transversata* Hufn. (Lep.: Geometridae) in Ireland. J. M. Chalmers-Hunt, 221
- Phyllonorycter messaniella* Zeller. An unusual foodplant of D. W. H. ffennell, 168
- Phyllonorycter mulleriella* Zeller (*amyotella* Duponchel) (Lep.: Gracillariidae) in Britain. A. M. Emmet, 208
- Phytoseiid Mites with a Note on their Zoogeography. A Review of Indian S. K. Gupta, 141
- Polyommatus icarus* Rottemburg (Lep.: Lycaenidae) in Shetland. H. W. Harper, 120
- Pyronia tithonus* L. ab. *albidus* Cockerell in the Isle of Wight. T. D. Fearnhough, 272
- Radnorshire. Some Lepidoptera in M. D. Cox, 69
- Refrigeration. A Valuable Adjunct to usual Relaxing Methods used by Lepidopterists. D. M. Kroon, 8
- Remarkable Year. 1973—A B. Goater, 214, 234
- Scilly. Late Autumn in the Isles of R. P. Demuth, 72
- Semiothisa signaria* Hübner (Lep.: Geometridae) New to Britain. R. Tomlinson, 195
- Shimba Hills. Butterflies of the D. G. Sevastopulo, 18, 131
- Sri Lanka. F. M. G. Stammers, 55
- Standfussiana lucerneae* L. The Day-time Flight of D. W. H. ffennell, 57
- Sterrrha sacraria* L. and *Orthonama lignata* Hb. in Gloucestershire. J. Newton, 17
- Syngrapha interrogationis* (L.) in Norfolk. T. W. Harman, 25
- Thecla betulae* L. Longevity in David Brown, 62
- Thera juniperata* L. (Lep.: Geometridae) comes North. C. L. Rutherford, 121
- Tipula lunata* L. (Diptera: Tipulidae) at Lode, Cambridgeshire. Swarming of A. E. Stubbs, 125
- Trichopteryx carpinata* Borkh. Attracted to *Biston strataria* Hufn. L. W. Siggs, 222
- Tuscany, May-June 1973. Butterflies in C. G. M. de Worms, 45
- Utetheisa* Hübner (Lepidoptera: Arctiidae) in the Western Pacific, with Larval Descriptions. Notes on the Genus. G. S. Robinson, 160
- Vanessids. Vice among the P. Jeffery, 220
- Warwickshire and Elsewhere. David Brown, 84
- Water Bugs (Hemiptera Heteroptera) Collected on Cape Clear Island, West Cork. A Note on Some T. K. McCarthy, 243
- Winters. Those Mild M. W. Harper, 182
- Zygaena carniolica* Scopoli (Lep.: Zygaenidae). A Possibly Abnormal Sex-ratio in Torben B. Larsen, 165

# OBITUARY NOTICES

P. B. M. Allan, 119, 171  
F. H. Lees, 171

K. M. Pennington, 250  
J. S. Taylor, 29

## AUTHORS

- Allen, A. A., 265  
 Beavis, I. C., 221  
 Birkett, N. L., 95  
 Boyle, C. I., 57  
 Bradford, E. S., 170...  
 Bretherton, R. F., 1, 93, 123  
 Brindle, A., 6  
 Brown, David, 62, 84  
 Chalmers-Hunt, J. M., 30, 31, 96,  
 173, 220, 221  
 Chandler, P. J., 154  
 Chipperfield, H. E., 28  
 Claassens, A. J. M., 253  
 Cunningham, P., 184  
 Dacie, J. and M., 208  
 Davey, P. A., 28  
 Demuth, R. P., 72  
 Dennis, R. L. H., 24  
 Dewick, A. J., 167  
 Dickson, C. G. C., 65, 177, 253  
 Else, G. R., 64  
 Emmet, A. M., 75, 103, 121, 122, 129,  
 147, 180, 206  
 Fairclough, R., 120  
 Fearnhough, T. D., 248, 272  
 Fennel, D. W. H., 57, 168  
 Ford, G. A., 59, 61  
 Gardner, A. F. J., 163  
 Goater, B., 214, 234  
 Green, J. E., 92  
 Greenwood, J. and D., 208  
 Gupta, S. K., 141  
 Hancock, E. G., 197, 239  
 Harman, T. W., 25  
 Harper, M. W., 120, 182  
 Harrison, F., 144  
 Haugum, Jan P., 109  
 Hawker, P. C., 241, 245  
 Heath, P. M., 221  
 Hofer, Eduard, 169  
 Huggins, H. C., 70  
 Hugo, P. J. D., 25  
 Hutchinson, G. E., 199  
 Hutchinson, M. M., 158  
 Jacobs, S. N. A., 27, 29, 126, 127,  
 128, 173, 175  
 Jeffares, M., 118  
 Jeffery, P., 220  
 Kennard, A., 24, 27  
 Kenyon, G., 247  
 Koutsaftikis, A., 15  
 Kroon, D. M., 8  
 Lahiri, A. R., 73  
 Larsen, T. B., 165  
 Lempke, B. J., 169, 222  
 Lipscomb, C. G., 170  
 Little, J. C., 9  
 Luckens, C. J., 188  
 Marshall, J. E., 224  
 Martin, P. A., 168  
 McCarthy, T. K., 243  
 Mitra, T. R., 53, 73  
 Moore, B. W., 221  
 Muggleton, J., 247  
 Newton, J., 17  
 Palmer, R. M., 33  
 Perry, I., 93  
 Peet, T. N. D., 57, 59  
 Perceval, M. J., 60, 81, 225, 245  
 Pickering, R. P., 29  
 Pilcher, R. E. M., 59, 94  
 Richardson, A., 124  
 Robinson, G. S., 31, 160  
 Robinson, H. S., 160  
 Rutherford, C. I., 122  
 Sands, W. A., 249  
 Sandhu, G. S., 114  
 Sankey-Barker, J. P., 110  
 Sevastopulo, D. G., 18, 131, 223, 224,  
 244, 247, 269  
 Siggs, L. W., 115, 222, 223, 248  
 Singh, J., 114  
 Sokoloff, P. A., 246, 248  
 Speight, M. C. D., 193, 246  
 Stubbs, A. E., 125  
 Taylor, B. J., 28  
 Tomlinson, R., 195  
 Valletta, A., 196  
 Watkinson, I. A., 26, 58, 64  
 West, D. K., 258  
 Wild, E. H., 248  
 Wilkinson, R. S., 259  
 Worms, C. G. M. de, 25, 26, 45, 49,  
 97, 137, 223, 224









595.7059

Ent.

# THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

*Edited by J. M. CHALMERS-HUNT, F.R.E.S.*

*with the assistance of*

A. A. ALLEN, B.S.C., A.R.C.S.

C. A. COLLINGWOOD, B.S.C., F.R.E.S.

NEVILLE BIRKETT, M.A., M.B.

H. C. HUGGINS, F.R.E.S.

S. N. A. JACOBS, F.R.E.S. (Registrar) S. WAKELY

Lieut. Col. A. M. EMMET, M.B.E., T.D., F.R.E.S.

H. B. D. KETTLEWELL, M.A. M.B., B.CHIR., F.R.C.S., L.R.C.P., F.R.E.S.



ANNUAL SUBSCRIPTION FOR THIS VOLUME No. 86

£4.00 Post free, for payment in sterling.

£4.25 if payment is made in Foreign Currency.

Is now due and should be paid to

*Hon. Treasurer:*

A. C. R. REDGRAVE, 2 Connaught Way, Tunbridge Wells, Kent

# *Studying Insects*

## **A Practical Guide**

**R. L. E. FORD**

**£2.50 net**

**0 7232 1705 X**

This is a revised edition of an earlier volume, *Practical Entomology*, and reflects the current emphasis on studying living insects rather than on collecting and killing them. Although primarily concerned with butterflies and moths, the book also covers groups such as ants, wasps and humblebees, and has sections on breeding insects and on conservation. With 16 pages of plates in colour and black and white.



## *South's British Butterflies*

**T. G. HOWARTH, B.E.M., F.R.E.S.**

**£10.50 net**

**0 7232 1499 9**

Richard South's classic work has now been brought completely up to date, with the text arranged in a more logical and readily accessible order. A valuable addition is the inclusion of illustrated aberrations of species. The 48 colour plates include illustrations of adults by A. D. A. Russwurm and of the early stages by R. B. Davis copied from the originals of F. W. Frohawk. With 320 pages, 57 distribution maps, colour identification key, index/glossary, cased binding, laminated colour jacket, slip case.

***FREDERICK WARNE & CO LTD***

**40 Bedford Square London WC1B 3HE**

## Butterflies in Cyprus, June 1973

By R. F. BRETHERTON, C.B., M.A., F.R.E.S.

My wife and I, with a non-entomological friend, spent a fortnight in Cyprus from 11th to 25th June 1973. The lepidoptera of Cyprus are fairly well known: Rebel's list of 1939 contains 59 species of Rhopalocera, ten of which have not been reported in the present century, and over 400 Heterocera, to which Wiltshire added over 50 in 1948 and 1949. I had already well sampled the butterflies during a week at Kyrenia in mid-May 1954; but I hoped to see this time some of the species for which that visit had been too early.

We flew comfortably from Heathrow to Nicosia by Cyprus Airways, picked up a previously hired car on our arrival at the airport in the late afternoon, and stayed the first night in the air-conditioned Ledra Palace Hotel just outside the walls of the old city. Its comfort was welcome, as the temperature was over 80 deg. F., though tempered by a stiff breeze. On the next morning, while returning from a visit to the Turkish quarter and its famous mosque, I noticed an unfamiliar little Blue flying beside the over-grown moat near the Paphos Gate, and I was able in half-an hour to take a good series of *Chilades galba* Lederer, a new species to me. Despite muttering thunder and a few spots of rain the males were flying freely to the blossoms of *Solanum dulcimara* (Woody Nightshade), and some of the more elusive females were seen to oviposit on a spiny, yellowish flowered vetch (probably *Anthyllis* sp.) which was growing among it. We saw this plant, without the *Solanum*, in a few other places in the plains later, but did not find the butterfly elsewhere.

From Nicosia we drove in the middle of the day by a circuitous route to the north coast and so to a comfortable small hotel at Bella Pais, about 1,500 feet up above Kyrenia, where we had booked for six nights. Both the coast and the limestone Kyrenia Mountains were already very desiccated, and the butterflies were scarce and mostly in poor condition. This was in striking contrast to my experience in the same area in mid-May 1954, when butterflies were abundant and most species were fresh. The difference may have been partly due to unusual weather: we were told that there had been little rain or snow during the winter, and all Cyprus was suffering from acute shortage of water. However, a few fresh *Gonepteryx cleopatra* Stmgr. and *Pontia daplidice* L. were seen among the gardens of the attractive village of Bella Pais (of "Bitter Lemons" fame), and two short visits to the Aghirda Pass produced a few fair specimens of *Hipparchia syriaca cypriaca* Riley, which were sheltering from the heat in the dried-up nullah or playing hide and seek round the olive trees; a single *Carcharodus alceae* Esp. was also seen there. The most interesting capture of the week was a large blackish Skipper caught in a dry water-course near our bathing place on the



Pachyammos Sands, east of Kyrenia. This turned out to be *Erionota thrax* L. (*mathias* Bdv.), a tropical and eastern species which, like *C. galba*, reaches its north western limits in Cyprus and Egypt. Another example was missed in the same place, but we did not find it elsewhere. A long expedition on 16th June across the mountains and the Mesoaria plain to Salamis and Famagusta proved disappointing: in the relatively well-watered area round Kythrea we saw only *P. daplidice* and other common species, the plain was wholly bare, and we were prevented by cloud and a thunder storm from investigating some promising ground in the eastern pass over the Kyrenia Mountains, where Dr De Worms did very well some years ago.

On 18th June we moved by a very hot drive westwards along the coast and then across the plain to Platres, where we stayed for six nights at the Hotel Pendeli. This is a delightful village about 4,000 feet up on the north side of the central Troodos Mountains. In July and August it is usually full of visitors seeking relief from the heat of Nicosia, but in mid-June the season had hardly begun and the villagers were fully engaged in picking an enormous crop of black cherries, mostly destined for the London market. The Troodos are much higher than the Kyrenia Mountains, and have larger reserves of water; moreover, since they are composed of igneous rock instead of limestone, there are occasional streams and surface dampness. Even so, however, one had to work hard to find butterflies in any number, and the forests of Aleppo and Troodos Pine (*Pinus halepensis* and *Pinus nigra*) which cover the higher slopes were almost empty of them.

The gardens and orchards of Platres village produced a fair number of *G. cleopatra*, *Celastrina argiolus* L. and a few *Lampides boeticus* L., and at night the hotel lights were productive, mainly of small Geometers and Pyrales, but with some bigger game: it was interesting to see the local British "Waves" *Idaea vulpinaria* H-S and *I. degeneraria* Hb. sitting along side a magnificent east Mediterranean Hawk moth, *Chaerocampa alecto cretica* R. & J. Above the village, towards the Caledonia Falls, I caught a male, and later a splendid female, of *Pseudochazara anthelea acamanthis* Rebel. The female—large, brick-red in colour, and with heavy spotting on the forewings—puzzled me as to its identity. I was familiar with *P. anthelea amalthaea* in Crete and mainland Greece, where the females are, like the males, black and white; but in Asia the white is replaced by brown, and in Cyprus the endemic form is still brighter in colour and more heavily spotted, a very striking insect. One or two more males were seen, but unfortunately no more females. A visit to a shady stream-bed rather lower down at Kato Platres gave a series of fresh and finely marked *Pararge egeria* L., also reddish brown, several *Limenitis reducta* Stdgr., a few of the endemic Blue *Glaucopsyche paphos* Turner, and a sight of our only *Papilio machaon* L.

Further afield, a walk to the top of Mount Olympus, (6,401 feet) was disappointing: the only things seen were a few of the Cyprus Grayling, *Hipparchia pellucida* Frhst., and *Maniola cypricola* Graves on the approaches, and a mixed colony of *Lasiommata megera lyssa* Hb. and *L. maera orientalis* Stdgr. and a couple of *Euchloe ausonia* Hb. flying wildly round the bare summit. Our most successful expedition was along the mountain roads to the Kykko Monastery and on to the Cedars Valley, which contains the relics of the Cyprus cedar forests. Near the monastery we had a close-up view—but not a capture—of a splendid *Charaxes jasius* L.; and in the Valley, beside a nearly dry spring, we found our largest concourse of butterflies: *H. pellucida* and *M. cypricola* in abundance, with a few *Hyponephele lupina cyprica* Riley and a single *Quercusia quercus longicauda* Riley drinking at the drying mud, and numbers of *L. reducta*, *G. cleopatra*, *C. argiolus* and *Aricia agestis calida* Bell. in the damp part of the forest above it. Another long drive to the south coast at Palaeopaphos and Curium was less profitable entomologically. Besides exploring these archaeological sites, we had a delicious bathe in the cove where Venus is reputed to have been born from the foam of the sea (one of our number acted the part for a photograph), but the only butterflies of interest were a single *Gegenes pumilio* Hffmsg in a dry water-course, which I stupidly missed several times, and a few *Chazara briseis larnacana* Obth. and *H. syriaca* by a stream on the way back to Platres. As on the north-coast, the low country was completely dried up.

On our last full day, 24th June, we left Platres early for Nicosia, intending to explore the eastern end of the Troodos on the way, since our guide-book described it as interesting and varied country. In fact, however, the road passed only rather unattractive mining villages in bare and desiccated hills, so we spent several hours in the middle of the day sheltering from the heat beside a stream on the lower slopes near Apliki which still contained some pools of water. There were a few butterflies here, including *H. lupina*, *H. pellucida* and *H. syriaca*, and also a small colony of the little Blue, *Chilades trochilus* Frr., sitting on bramble blossoms or drinking on the mud. Unfortunately they were mostly very worn, but I was particularly glad to catch this, the smallest European butterfly, which had eluded me in Greece. It is easily distinguished from *C. galba* by the fact that the males are brown instead of Blue.

Nicosia, which we reached about 5.30 p.m., was even hotter than before, and we did not attempt any collecting on the following morning before driving to the air-port for the return flight to London, after an extremely pleasant but entomologically rather unprofitable holiday. The list of species seen, which is appended, includes 32 species of Rhopalocera. This compares with 23 species seen by me 13th to 20th May 1951 around Kyrenia, and 22 species seen in that area by Dr de Worms between 25th April and 14th May 1967; but at these earlier dates the numbers of insects were certainly greater



and the condition of most species better. This year I was struck by the scarcity of the migratory species. *Colias crocea* Fourc. was fairly widespread but mostly seen singly, of *Vanessa atalanta* L. I saw only two, and of *V. cardui* only one worn specimen. The whole Cyprus list is, like those of most of the Mediterranean islands, relatively short; but it is of considerable interest because of its high proportion of endemic sub-species and because of its Asiatic affinities, which are much stronger than in Crete or even in Rhodes.

Lepidoptera seen in Cyprus, 11th to 25th June 1973

- Papilio machaon* L. Kato Platres, 3,000 ft., one fresh 22.6.  
*Pieris brassicae* L. Kyrenia and Troodos, f.c.  
*P. rapae* L. general but not abundant.  
*P. daphidice* L. general both in plain and mountains: small, gen. II.  
*Euchloe ausonia* Hb. Mt Olympus, 6,400 ft., two seen 20.6.  
*Colias crocea* Fourc. general, mostly singly; only one *f. helice* Hb.  
*Gonepteryx cleopatra taurica* Stdgr. Kyrenia and Troodos, f.c. and fresh near water.  
*Charaxes jasius* L. Chakistra, 3,250 ft., one seen 23.6.  
*Limenitis reducta* Stdgr. Kato Platres, 22.6; Cedars Valley, 23.6; Apliki, 24.6  
*V. atalanta* L. Bella Pais, one 14.6; Palekhori, one 24.6.  
*V. cardui* L. Kato Platres, one worn 22.6.  
*Hipparchia syriaca cypriaca* Stdgr. Widespread and f.c. to 3,000 ft., among olive trees and in dry nullahs.  
*Chazara briseis larnacana* Obth. Widespread to 4,000 ft., but mostly singly.  
*Hipparchia pellucida* Frhst. Kyrenia region, worn and scarce; Troodos to 6,000 ft., common, esp. in Cedars Valley.  
*Pseudochazara anthelea acamanthis* Rebel. Platres, 4,500 ft., two males, one female, 19.6; Troodos, 5,000 ft., one male 20.6.  
*Maniola cypricola* Graves. Kyrenia region, worn and scarce; Troodos region, common.  
*Hyponephele lupina cypriaca* Riley. Bella Pais, one 14.6; Cedars Valley; f.c. 23.6; Apliki, 24.6.  
*Pararge egeria* L. Kato Platres, 22.6; Cedars Valley; 23.6; Apliki, 24.6. Common and fresh in shady stream-beds.  
*Lasiommata megera* L. Troodos summit 20.6; Kato Platres, 22.6.  
*L. maera orientalis* Stdgr. Bella Pais, 14.6; Troodos summit 20.6.  
*Kirinia roxelana* Cramer. Agros, 24.6, one only.  
*Quercusia quercus longicauda* Riley. Cedars Valley, one male 23.6.  
*Lycaena phloea* L. Kato Platres, 22.6; Cedars Valley, 23.6; Apliki 24.6. Not common.  
*Lampides boeticus* L. Platres 22.6, several; Apliki, one 24.6.

- Chilades trochilus* Frr. Apliki, 24.6, four caught, others seen on blossom and mud; worn.
- C. galba* Led. Nicosia, outside Paphos Gate, 12.6, an abundant colony, fresh.
- Celastrina argiolus* L. Troodos region, widespread and f.c., only males seen.
- Glaucopsyche paphos* Turner. Lapithos spring, worn female 18.6; Kato Platres, males fresh 22.6.
- Aricia agestis calida* Bell. Troodos region to 6,000 ft., fresh and common locally on the forest edges.
- Carcharodus alceae* Esp. Aghirda Pass, one seen 17.6.
- Erienota thrax* L. (*mathias* F.) near Psammotis Beach, one taken, one seen, 15.6.
- Gegenes pumilio* Hffmsg. Palaeopaphos, one missed 21.6.
- Chaerocampa alecto cretica* R. & J. Platres, one at light 21.6.
- Acronycta psi* L. Platres, one at light 20.6.
- Dysgonia algira* L. Bella Pais, one worn 13.6.
- Chlorissa pulmentaria* Gn. Platres, at light 15.6.
- Idaea vulpinaria* H-S. Platres, several at light 23.6.
- Idaea ostrinaria* Hb. Platres, several at light 23 and 24.6.
- Idaea degeneraria* Hb. Platres, 21.6.
- I. rufaria* Hb. Bella Pais, at light 18.6; Platres, many at light 21/23.6.
- Scopula marginepunctata* Goeze. Platres, two at light 20.6.
- Gymnoscelis rufofasciata tempestivata* Z. Bella Pais, abundant at light 13/17.6.
- Peribatodes perversaria correptaria* Z. Platres, at light 23.6.
- Aporodes florealis* Hb. Bella Pais, at light 17.6.
- Pyrausta aurata meridionalis* Stdgr. Widespread by day: Apliki, etc.

## REFERENCES

- Bretherton, R. F. (1954). A week's butterfly collecting in Cyprus. (*Entomologist*, **87**: 207-211).
- de Worms, C. G. M. (1967). Three weeks in Cyprus, April-May 1967. (*Ent. Rec.*, **79**: 245-249).
- Rebel, H. (1939). Zur Lepidopterenfauna Cyperns. (*Mitt. Munch. Ent. Ges.*, **29**: 487-564).
- Wiltshire, E. P. (1948). Two new forms or species and 35 new records from Cyprus (*Ent. Rec.*, **60**: 79-87); (1949). Some more new records from Cyprus (*Ent. Rec.*, **61**: 73-78).

Folly Hill, Birtley Green, Bramley,  
Guildford, Surrey

30.8.1973.

---

ACHERONTIA ATROPOS L. IN ESSEX IN 1973.—I would like to record that a specimen of the Death's-head Hawkmoth was found on a grass verge on October 1st 1973 at Upminster, Essex, by a schoolboy Kevin Harries. — R. R. Cook, Donna, Blackmore Road, Hookend, near Brentwood, Essex.



## A New Species of Dermaptera (Forficulidae) from Mexican Bromeliads

By A. BRINDLE  
(Manchester Museum)

Bromeliads, of which the pineapple is the most familiar example, occur in a variety of forms in the tropical parts of Central America, some being epiphytic, such as *Tillandsia* or Spanish moss, whilst others, such as *Billbergia*, are more suggestive of the pineapple plant. Since these are more common in the wetter parts of the area, water collects amongst the basal leaves, and this habitat may harbour a rich fauna of insects, some of which are characteristic of this habitat, such as the larvae of the giant damselfly, *Mecistogaster*. The shelter afforded by the leaves of other bromeliads attract other insects and whilst some of these insects are widely distributed, others are not known from other habitats. The tendency for earwigs to seek shelter in dark moist crevices partly explains their interest in bromeliads, and food, in the shape of softer insects or vegetable material is likely to be available.

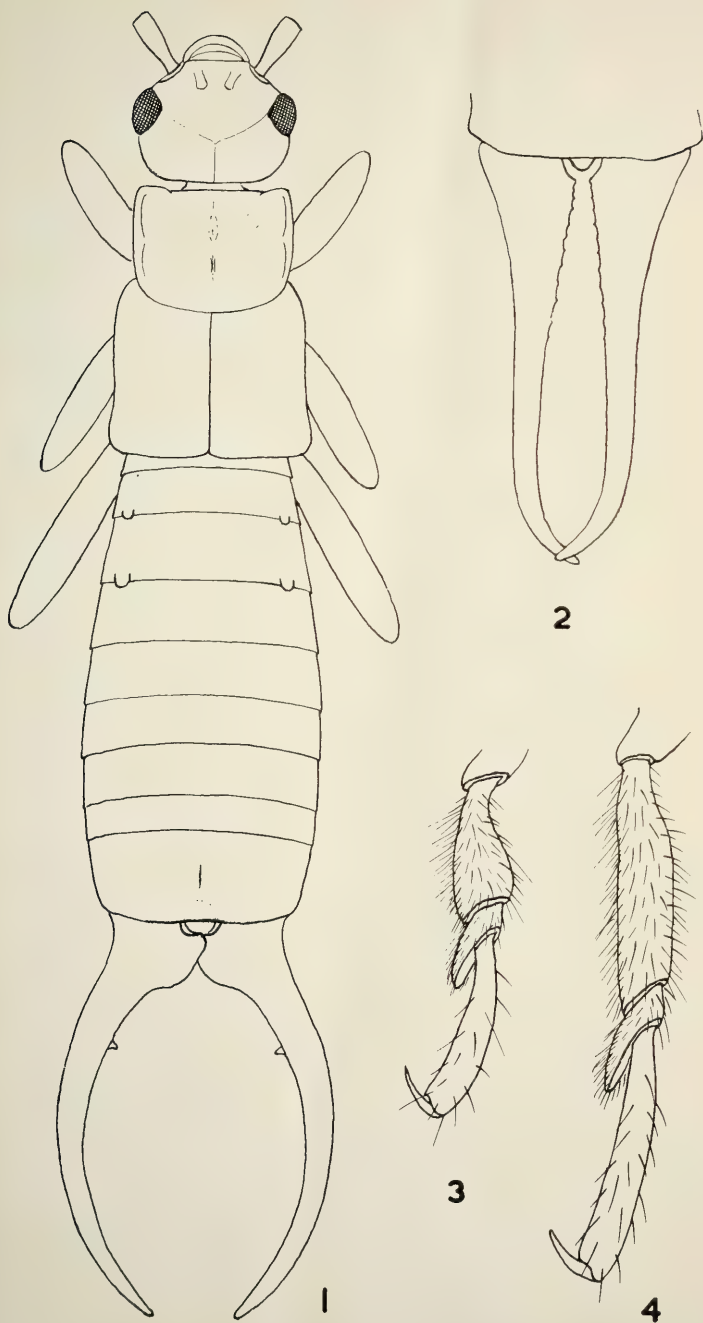
In the course of investigating the fauna of Mexican bromeliads, Mr K. E. Lucas, of the California Academy of Sciences, has come across numbers of a previously undescribed species of *Skalistes*, together with a few other specimens of known Mexican species. These latter are females and likely to be present for the purpose of egg laying, but the new species, which I have pleasure in naming after the captor, may be restricted to bromeliads since both sexes are present. I am indebted to Dr Paul H. Arnaud Jr., of the California Academy of Sciences, for the opportunity to examine the specimens.

### *Skalistes lucasi* sp.n.

Blackish; antennae dark brown, basal segment reddish-yellow to reddish-brown; legs reddish—or yellowish-brown, or with femora somewhat darkened. Cuticle coriaceous, glabrous, rather shining.

Male (fig. 1): head transverse, tumid, lateral margins curving smoothly into almost straight posterior margin; epicranial sutures marked by narrow smooth and shining lines; two U-shaped depressions lie between the antennal bases, with the open end of the U-directed anteriorly and the depressions diverging; eyes rather large. First antennal segment long, but slightly shorter than the distance between the antennal bases, second segment transverse, third and fourth segments nearly subequal in length, two and half times as long as broad, fifth segment three times as long as broad; distal segments four times as long as broad, almost cylindrical but slightly and evenly narrowed basally, actual bases and apices rounded; all segments pubescent, hairs short and yellow. Pronotum

PLATE I



*Skalistes lucasi* sp.n.—1, male, dorsal; 2, female forceps; 3, anterior leg; 4, posterior leg.





transverse, lateral margins almost straight and curved slightly dorsally, posterior margin weakly convex; surface with a fine median longitudinal smooth line, on anterior half of which is an elliptical depression, whilst a short swelling occurs posterior to this (fig. 1); two small anterior circular depressions also occur, one on each side of median line, these depressions of variable size and prominence. Elytra about as long as pronotum, measured along suture, posterior margin more or less straight. Legs relatively short, femora broad, especially those of anterior pair of legs, and with very sparse yellow hairs; tibiae compressed, somewhat shorter than femora, and with longer ventral yellow hairs, hairs fairly dense towards apices; first segment of anterior tarsi short, broadened distally, second segment short, broad, strongly dilated, third segment (distal) narrowed basally, longer than first segment. All segments with long yellow hairs, denser on first and second segments, and most dense ventrally (fig. 3). Posterior tarsi similar to anterior tarsi but first segment relatively longer and more slender (fig. 4). Middle tarsi intermediate in characters between anterior and posterior tarsi.

Abdomen broad, depressed, slightly wider medially, lateral tubercles on third tergite well marked, those on fourth larger; last tergite transverse, depressed medially near posterior border and with a short median longitudinal furrow; penultimate sternite with posterior margin almost evenly rounded. Each branch of forceps cylindrical, widened at base to form a rounded flange, margin irregular and thickened, the flange not reaching extreme base but recessed and exposing the rounded pygidium; rest of branch evenly curved, curvature varying slightly, inner margin with small denticulations basally and with a median tooth of variable size. Length of body 10-12.5 mm., forceps 4.5-6 mm.

Female: similar to male; last tergite narrower, median depression less marked; each branch of forceps slender, broader basally, inner margin recessed at extreme base and with crenulations for basal half or more; pygidium short, basically triangular with angles rounded (fig. 2). Length of body 10-12 mm, forceps 3.3-5 mm.

Material examined: ♂ holotype, Chiapas-Oaxaca border, 21 Km. W. Rizo de Oro, along ridge S.E. Cerro Baul, 1615 m., 8-IX-1972, within *Tillandsia* sp. (K. E. Lucas). Paratypes: — 4 ♂, 9 ♀ including allotype, same data; 1 ♂, 1 ♀, same data but within *Catopsis* sp.; 2 ♂, 2 ♀, same data but within *Vriesia* sp.; 12 ♂, 10 ♀, same data but 8-I-1973, within epiphytic *Vriesia* sp.; 1 ♂, 2 ♀, same data but 8-I-1973, within *Catopsis* sp.; 4 ♂, 6 ♀, same data but 8-I-1973, within *Tillandsia guatemalensis*. All collected by K. E. Lucas and all specimens in California Academy of Sciences except for 4 ♂, 4 ♀ paratypes in Manchester Museum and 2 ♂, 2 ♀ paratypes in British Museum (Natural History).

*Skalistes* is restricted to America and is very similar to *Forficula* in many characters. *S. lucasi* is distinctive by its



blackish colour, by the absence of visible wings, and by the broad basal flange on each branch of the male forceps. In the key to species of *Skalistes* in Brindle (1970) it keys down to *vara* (Scudder); the key may be amended as follows:—

8. Elytra short, wings absent or concealed ..... 8a

— Elytra longer, wings usually visible ..... 9

8a Reddish to dark brown, male forceps undulate from a side view and branches without a basal flange; smaller, body length 7.9-5 mm., forceps (males) 3.3-5 mm .....

*vara* (Scudder)

— Blackish; male forceps not undulate from a side view, and branches with a basal flange; larger, body length 10-12 mm., forceps 4.5-6 mm (males) ..... *lucasi* sp.n.

*S. lucasi* is also related to *S. smithi* (Bormans) and *S. linsleyi* Brindle, in which the wings are sometimes also just visible; these species are much paler in colour, and each branch of the male forceps have a much smaller basal projection, consisting of a tooth or a double-toothed process.

#### REFERENCE

- Brindle, A. (1970). A preliminary revision of the genus *Skalistes* Burr (Dermaptera: Forficulidae). *Entomologist*, **103**: 217-228.

## Refridgeration—A Valuable Adjunct to Usual Relaxing Methods used by Lepidopterists

By D. M. KROON

Accepted methods for relaxation and setting of Lepidoptera are both tedious and time-consuming coupled with certain disadvantages. After successful collecting safaris this sometimes poses serious time problems. Certain families relax with difficulty despite various treatments with concentrated ammonia, boiling water or specially prepared relaxing fluids. Discolouration of subtler shades of green is common while Pieridae, especially whites and yellows, develop green blotches on the wings. Fungal growth has been largely overcome by the addition of weak solutions of phenol, carbolic acid, or thiomersalol to the relaxing tin.

These problems *CAN be obviated!* As an effective and highly satisfactory alternative I have been using deep re Fridgeration of all freshly caught specimens. The properly labelled specimens are packed in airtight plastic containers and placed in the deep-freeze soon after demise, or even later for larger specimens. Because cyanide killing jars tend to dehydrate small specimens rapidly, these are placed in another container after demise, and packed later properly prior to freezing. Small or large specimens are equally well preserved for subsequent mounting, with incomparable preservation of the true wing colours. After removal from the deep-freeze small specimens can be set almost immediately, while larger

specimens take a little longer to thaw. The utmost pliability for setting is retained though *rigor mortis* which develops in some specimens may first have to pass off.

#### ADVANTAGES:

- 1) Elimination of the disadvantages listed above.
- 2) Time-saving in the field, where every minute is precious.
- 3) Cumbersome, and often heavy, setting boards and carrying cases can be left at home.
- 4) Prevents possible spoiling of valuable material by dust, mechanical forces or the ingress of Dermestidae or ants during long veld stays.
- 5) Traditionally difficult relaxers such as Hesperidae are in a profound state of relaxation and ready for setting even months later.
- 6) Engorged Charaxes can be frozen and their abdomens treated in the desired manner on thawing with greater ease at home than in the field.
- 7) The filiform antennae of many moths do not curl to the same extent as dried specimens set later after relaxing.
- 8) Pinning of extreme micros should still be effected in the field, but require shorter relaxing periods if dealt with in the above manner. The plumes and fringes are partially splayed before freezing as these are always affected by relaxing when they tend to mass and stick together detracting from their real beauty.

#### APPARATUS:

Reasonably priced small lightweight portable deepfreezers are commercially available operating on AC/DC electricity, from batteries or gas, or combinations of above. For the casual collector with a caravan, the deepfreeze compartment usually suffices. Transport of specimens for periods up to twenty-four hours can be satisfactorily effected by packing the frozen containers in lightweight polystyrene boxes packed with ice. Once back home I replace the now partially thawed specimens into the deepfreeze. A few specimens are removed and set at a time which is convenient, with excellent results and without the bother of resorting to relaxing tins.

In conclusion I would urge collectors to put this useful adjunct to the trial, as means of temporarily storing specimens prior to setting, and so avoiding the relaxing tin with its inherent disadvantages.

P.O. Box 572,  
SASOLBURG, South Africa.

---

HERSE CONVULVULI L. IN KENT.—On Saturday, 10th November 1973, a boy brought to me a live male *Herse convolvuli* in excellent condition. He found the insect sitting on a shop in Red Lodge Road, West Wickham. — JAMIESON C. LITTLE, 70 Langlev Wav. West Wickham, Kent. BR4 ODR. 18.xi.1973.

## An Account of Some of the Lepidoptera of the Moorlands near Llyn Cwmynach, Merioneth

By M. R. YOUNG

I have been fortunate enough to have spent four short holidays in successive years (1970, '71, '72 and '73) in the area near Llyn Cwmynach in Merioneth, and although these have all been in July and August I have also visited the moors at other seasons, each time just for the day. Consequently, to some extent, I have been able to assess the character of the area's lepidopterous fauna, indeed, I feel that I might almost be well acquainted with it by now were it not for the weather. I imagine that most of you will have visited and collected in Wales at some time and I am willing to stake my shirt that you all know from bitter experience the masochistic misery of bug-hunting in the wild, wet, Welsh weather. As I arrived the prevailing westerlies spread their ragged, grey blanket across the mountains, the rain fell relentlessly, and just for good measure, in case I had the temerity to venture out with my Tilley or larva tin, the temperature fell like the rain and the wind drove scuds of very wet water down the neck and sleeves of my waterproof.

But I digress: the area above Llyn Cwmynach is a breathtakingly beautiful mixture of rugged moorland and pitifully poor sheepwalk. The upper slopes are dominated by heather (*Ling*, *Calluna vulgaris*), Bilberry (*Vaccinium myrtillus*) and the Hard Grass (*Nardus stricta*) with the ubiquitous Bracken (*Pteridium aquilinum*) taking all the footholds that it is allowed. There are many streams and flushes with their associated oases of flowering plants but true montane species are very scarce and indeed the highest peak in the area, Y Llethr (2475 ft.), is a dull lump of dreary sheepwalk. Fortunately the other local peaks are more as they should be and in places their higher slopes are sparingly sprinkled with brilliant patches of Starry Saxifrage (*Saxifraga stellaria*) and other mountain plants. A scattering of old, deciduous trees partially covers the lower slopes, but these trees are now being engulfed by plantations of conifers which are found up to 1000 ft on every hillside. My stamping ground was above the tree-line and on the lower slopes of Y Llethr, fortunately in the middle of a large expanse of heather, and surrounded by the vegetation described above I had high hopes that my dreams of a sheet covered in Welsh specialities would be realised: weather permitting!

Only one species of butterfly was resident in the area in which I stayed and that was the ubiquitous Small Heath (*Coenonympha pamphilus*). It was found up to 2300 ft and on every walk I disturbed a quota of four or five which struggled up through the grass stems, flicked their wings once, and then allowed themselves to be blown back in amongst the tussocks. Try as I would I could not change them into their larger and



rarer cousin and I do not think that there is sufficient *Rhynchospora* in the area for *tullia*'s liking.

In addition to *C. pamphilus* there were a number of species of butterfly which bred in the adjacent valleys and lower slopes but which were often to be seen up on the hillsides. Notable amongst these were the fritillaries, *Argynnis aglaia* and *A. selene*, both of which were common until late July. In one spot near Llyn Cwmynach, where there had been a field in the past, the profusion of docks provided a habitat for the Small Copper (*Lycaena phlaeas*) and the same valley was the only local home for the Grayling (*Eumenis semele*). In 1970 there was a steady trickle of the Large and the Small Whites (*Pieris brassicae* and *P. rapae*) moving quickly from the north-west to the south-east forming a small but very marked migration. The weather at the time was uncharacteristically hot and sunny, with a slight westerly breeze.

These butterflies took only a supporting role in the main play, however, for on nights on which there was only a moderate wind, or when the rain temporarily lessened, the air was alive with moths. There were far more than I remember seeing in the lowlands even on the best of nights, but often they were of only two or three species and the attraction of some species waned even for an avid bug-hunter like myself. Imagine seeing scores of *Colostygia didymata* night after night: he was a constant visitor to my Tilley, and then when that was extinguished he would come and drown noisily in my wax candle. His lady, however, was more retiring and so more exciting, although searching the grassheads at dusk was sure to find her out. Their drab and elusive relation, *C. salicata*, was more circumscribed in its emergence times and I found it in its second generation only for one brief spell each year and that always at the end of July; in fact August 1st was its heyday and I am glad to say that due to the inaccessibility of the moorlands *salicata* always outnumbered the human trippers.

Each year, as July gave way to August, the first *Lygris populata* began to appear and they soon reached plague proportions before being replaced gradually at about the middle of the month by their cousin *L. testata*. Both these lovely moths seem to me to be at their best on the moorlands and *populata* ranged from the most delicate pale lemon wash to a brazen contrast of orange and dark brown. Another congeneric pair of species that were always present were *Colostygia pectinataria* and *C. olivata*. These species were common and regular in their occurrence, but were nowhere near as abundant as the two *Lygris* species or as the day-flying *Ematurga atomaria*, however they made up for their lack of numbers by their appearance, being handsomely marked in green and black: I never grew tired of their presence on my sheet.

All the moths mentioned so far came eagerly to light; one other species was common but required being searched for.

Rather I should say that it required being "walked" for, for it found me by itself. Whenever I walked past a rock-face in July or early August several specimens of *Entephria caesiata* would dash off past me. When I managed to catch up with them I found them to be of a very strong, handsome slate-grey (even if sometimes they were somewhat unicolorous), very suitable for sitting on Welsh rocks, but surely it is a major entomological triumph to net *caesiata* as it leaps from its rock. Driven by the wind they left me standing, and I have to confess that whenever I caught one all I knew was the rush of its wings as it flung itself into my net.

There were some other geometrids which visited my light but only irregularly and in ones and twos. Try as I might I could not find their larvae and I think that some of them may have strayed from their breeding grounds in the lower areas. These moths included *Epirrhoe alternata*, *Lyncometra ocellata*, *Euphyia bilineata*, *Alcis repandata*, *Triphosa dubitata* and the striking moorland form of *Crocallis elinguaris*. *Sterrharnata* seemed to be in this category in 1970, 1971 and 1973 but in 1972 it was abundant. Even so I never found its larvae although I searched for them carefully.

I found many other larvae of the other common species. Those of *C. didymata* and *E. atomaria* were abundant, the former usually on Bilberry but sometimes on Ling, the latter always on Ling (and both were skilled at disguising themselves as other species), and those of *L. testata* were fairly common on Ling. Two other larvae which I also found frequently on the same pabulum and which provided me with a great deal of enjoyment were *Eupithecia nanata* and the noctuid *Anarta myrtille*. Although I found dozens of these I still could not resist an expedition to search for them as they are so attractive and so skilled at camouflage. As far as I am concerned they are always worth getting wet for!

Some species of noctuid were regular and common visitors to my light, although they seemed to require the wind to drop rather more than did the geometrids. A number of these noctuids was out throughout July and August and I soon came to know their ragged and wind-blown profile on the windows. *Lycophotia varia* was one such and the occasional fresh specimens that appeared were very smart in their warm reds and browns. The same cannot be said of the other commoners, *Cerapteryx graminis*, *Stilbia anomala* and *Ochropleura plecta* always being down at heel, and the dingiest of them all was also the most abundant; bedraggled *Leucania impura* were everywhere. This master of impersonation was the cause of many a soaking as I was often lured out into the rain only to find that the exotic 'bug' pressed so invitingly against the window-pane had metamorphosed into *L. impura*. Imagine my delight then when in 1970 one of the larger of these supposed exotics turned out to be *Amathes ashworthii*! This striking moth was quite a rarity in 1970 and 1971, I saw perhaps two or three a week but in 1972 and 1973 he blossomed out. First of all I found

one of his larvae, in early July 1972, sitting in the sunshine at midday on a heather twig (not at all what I expected of him) and then when I went to stay in August he was really quite common as an adult. The larva was parasitized, of course, and just to add insult to injury the nasty wasp that was the only result of my tender care escaped before I could identify it. However, the adult moths were all that I had hoped for. When I first arrived (2/8/72) they were newly emerged and ranged from the softest dove-grey to a dark, smudged slate colour. They came freely to light (I never found any at rest or on heather blossom) and they came with a bang when they came: no coy 'sidling-by' like an *impura* luring me off into the wet heather, just a confident bump and there they were. I grew quite blasé in the end, you know, and dismissed them with a wave and a glance.

Two other regulars of which I never tired were *Plusia interrogationis* and *Amathes agathina* (the latter only in late August and early September). *P. interrogationis* was a very skittish lady at light, but whenever I caught her at last it was worth the chase for surely she is one of our most lovely moths.

As with the geometers, so with the noctuids, there were some species which appeared only casually and irregularly. Some were undoubtedly residents, for example *Celaena haworthii* and *Xylena vetusta*, but others may have been merely visiting, for example *Apamea crenata* and *Amathes baja*. Noctuid larvae were scarce and *Anarta myrtili* apart, *Ceramica pisi*, *Apatele menyanthidis* and *Eumichtis adusta* were the only ones found (and those only rarely and by chance). However, there were other large larvae about for most of the time as *Philudoria potatoria*, *Lasiocampa quercus* and *Macrothylacia rubi* were often common and *Saturnia pavonia* sometimes turned up, particularly on the lower slopes.

The impression that I gained of the lepidopterous fauna of the area was that it reflected the monotony of the available foodplants and the inclemency of the weather. Thus a few species, which fed on the common heather, bilberry or grasses and which were obviously adapted to the climate, were abundant, and numerically swamped the few other species which maintained a seemingly precarious foothold. The dominant species in July and August were *L. impura*, *A. ashworthii* (in 1972 and 1973), *S. anomala* and *C. graminis* of the noctuids and *C. didymata*, *E. atomaria* and the two *Lygris* species of the geometers. Of those that were only found infrequently many were associated with plants that were themselves infrequent. One sheltered niche contained a solitary Foxglove (*Digitalis purpurea*) which produced a single larvae of *Eumichtis adusta* on two successive years: the only ones that I found.

Taken all in all my efforts were rewarded; I had the thrill of seeing Ashworth's Rustic landing on my sheet and the even greater thrill of seeing it flying off into the rain and wind of its own wild habitat. I pitted my powers of detection against the



camouflage of *myrtilli* larvae, and I had the satisfaction of finding my quota of the less striking but characteristic larvae and adults by steadily 'working' the moorland. I got my eye into the painstaking task of stooping over the wet heather clumps, as they were being buffeted by the wind, to find the larvae that clung so stoically to the twigs and flowers, and I learnt to spot *caesiata* on its rock-face even if I could never learn to catch it! But after all this I know that I have hardly started, that I am still a tyro. Why? Because I have watched an expert in action. My wife, interested in bugs only for my sake and squeamish in the face of the common moths, found, in one day, without really looking (so she says), *two interrogationis* adults sitting low down on heather stems. I am speechless before her expertise!

Complete list of all species recorded in the area near Llyn Cwmynach in the years 1970-73 inclusive:—

*Ochlodes venata* B. & G., *Pieris brassicae* L., *P. rapae* L., *P. napi* L., *Lycaena phlaeas* L., *Vanessa atalanta* L., *V. cardui* L., *Aglais urticae* L., *Inachis io* L., *Argynnis aglaia* L., *Aselene* D. & S., *Pararge megera* L., *Eumenis semele* L., *Maniola jurtina* L., *Coenonympha pamphilus* L.

*Saturnia pavonia* L., *Orgyia antiqua* L., *Lasiocampa quercus* L., *Macrothylacia rubi* L., *Philudoria potatoria* L., *Parasemia plantaginis* L.

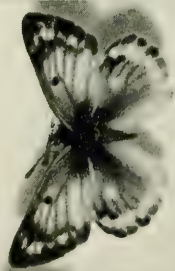
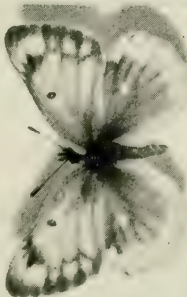
*Agrotis ipsilon* Hufn., *A. vestigialis* Hufn., *Lycophotia varia* Vill., *Ammogrotis lucerneae* L., *Ochropleura plecta* L., *Diarsia mendica* F., *D. rubi* Viewig, *Paradiarsia glareosa* Esp., *Amathes agathina* Dup., *A. ashworthii* Doubl., *A. castanea* Esp., *A. xanthographa* D. & S., *Euschesis comes* Hübn., *E. ianthina* D. & S., *Anarta myrtilli* L., *Ceramica pisi* L., *Cerapteryx graminis* L., *Leucania impura* Hübn., *Xylena vetusta* Hübn., *Eumichtis adusta* Esp., *Apatele menyanthidis* Esp., *A. rumicis* L., *Apamea crenata* Hufn., *A. epomidion* Haw., *A. monoglypha* Hufn., *A. secalis* L., *Euplexia lucipara* L., *Phlogophora meticulosa* L., *Stilbia anomala* Haw., *Celaena haworthii* Curtis, *Plusia bractea* D. & S., *P. gamma* L., *P. interrogationis* L., *Scoliopteryx libatrix* L., *Phytometra viridaria* Clerck.

*Scopula ternata* Schrank, *Cidaria fulvata* Forster, *Colostygia didymata* L., *C. olviata* D. & S., *C. pectinataria* Knoch, *C. salicata* Hübn., *Dysstroma citrata* L., *D. truncata* Hufn., *Entephria caesiata* D. & S., *Eppirhoe alternata* Muller, *E. galiata* D. & S., *E. tristata* L., *Euphyia bilineata* L., *Eupithecia nanata* Hübn., *E. sobrinata* Hübn., *Gymnoscelis pumilata* Hübn., *Hydriomena furcata* Thunb., *Lygris populata* L., *L. testata* L., *Lyncometra ocellata* L., *Ortholitha chenopodiata* L., *Triphosa dubitata* L., *Xanthorhoe ferrugata* Clerck, *X. fluctuata* L., *Alcis repandata* L., *Crocallis elinguaris* L., *Ellopija fasciaria* L., *Ematurga atomaria* L., *Opisthograptis luteolata* L., *Selenia bilunaria* Esp.

*Hepialus fusconebulosa* DeGeer, *H. lupulina* L.



PLATE II





## Recent Butterfly Records from Greece

By Dr A. KOUTSAFTIKIS

The butterfly records that are being listed below, represent the most important of my recent personal captures, carried out primarily in the northern districts of Greece. In all uncertain cases identification was established by an examination of the male genitalia. I wish to express my thanks to Mr J. G. Coutsis for his help in the preparation and study of the genitalia.

### *Pieridae*

1. *Colias hyale* L. (Fig. a). Three males captured in June on the island of Thasos, north Aegean. Identification based on well marked superficial characters. Length of Forewing: 26-28 mm. Locality temperature and humidity: 35°C and 54" respectively.

2. *Colias phicomone* Esp. (Fig. b, c). A male and female captured on the island of Thasos, c. 600 m, in July. The entirely unexpected appearance of this alpine butterfly on this island suggests probable introduction. Length of Forewing: 23 mm, male; 26 mm, female. Locality temperature and humidity: 35°C and 50" respectively.

### *Nymphalidae*

3. *Melitaea arduinna* Esp. (Fig d). Found in the district of Ioannina, at 1400 m, in June. Length of Forewing: 21 mm. Locality temperature and humidity: 25°-28° C and 49" respectively. This is probably the first record of this species for our area.

4. *Euphydryas aurinia* Rott. (Fig. e). Captured in the districts of Florina, Drama, Evros and Ioannina in May-July, at altitudes varving from sea level to about 2100 m. Length of Forewing: 11-22 mm. Locality temperature and humidity: 28°-36° C and 45"-58" respectively.

### Key to Plate II

- a. *Colias hyale* L., ♂, upperside, Thasos Island.
- b. *Colias phicomone* Esp., ♀, upperside, Thasos Island.
- c. *Colias phicomone* Esp., ♂, upperside, Thasos Island.
- d. *Melitaea arduinna* Esp., ♀, upperside, district of Ioannina.
- e. *Euphydryas aurinia* Rott., ♂, upperside, district of Florina.
- f. *Pseudochazara sintenisi* Stgr., ♀, upperside, district of Ioannina.
- g, i, k, l. *Coenonympha tullia occupata* Rebel, ♀, upperside, district of Florina.
- h. *Coenonympha tullia occupata* Rebel, ♀, upperside, district of Florina.
- j, m, n. *Coenonympha tullia occupata* Rebel, ♂, upperside, district of Florina.
- o. *Strymonidia pruni* L., ♀, upperside, district of Drama.

*Satyridae*

5. *Hipparchia syriaca* Stgr. Found on the island of Thasos in June-August, from sea level to about 1600 m. Length of Forewing: 29-35 mm. Locality temperature and humidity: 19°-35° C and 48"-54" respectively. All specimens identified by genitalia.

6. *Hipparchia fagi* Scop. Captured in the districts of Drama and Trikala in June, July, at 900-2000 m. Length of Forewing: 33-35 mm. Locality temperature and humidity: 20°-32° C and 60" respectively. Identification based on genitalia.

7. *Hipparchia aristaeus* Bon. Captured in the districts of Drama and Corinth in June-September, from sea level to about 1600 m. Length of Forewing: 26-30 mm. Locality temperature and humidity: 20°-35° C and 60" respectively. Identification based on genitalic characters.

8. *Pseudochazara mamurra* H.-S. Recorded from the districts of Laconia and Ioannina in July, at 1200-1700 m. Length of Forewing: 23-24 mm. Locality temperature and humidity: 28°-34° C and 45"-62" respectively.

9. *Pseudochazara sintenisi* Stgr. (Fig. f.) A single female captured in the district of Ioannina, at 1200 m, in July. Length of Forewing: 28 mm. Locality temperature and humidity: 28°-32° C and 45"-66" respectively. This capture constitutes a first record for Greece and, probably also, for Europe.

10. *Coenonympha tullia occupata* Rebel (Fig. g-n). Found in the districts of Florina and Kozani, at 350 m, in June. Length of Forewing: 16-19 mm. Locality temperature and humidity: 24°-28° C and 44"-52" respectively. Probably never before recorded from our area.

*Lycaenidae*

11. *Strymonidia pruni* L. (Fig. o). Captured in the district of Drama in July, at about 650 m. Length of Forewing: 11 mm. Locality temperature and humidity: 28°-32° C and 64" respectively.

12. *Everes argiades* Pallas. Captured in the districts of Florina and Serrai in July, at sea level to 600 m. Length of Forewing: 13-15 mm. Locality temperature and humidity: 26°-36° C and 48"-51" respectively.

13. *Everes alcetas* Hoffmannsegg. Captured at sea level, in the district of Serrai, in July. Length of Forewing: 14 mm. Locality temperature and humidity: 36° C and 48" respectively.

14. *Polyommatus eroides* Friv. Found at 950 m in the district of Drama, in June. Length of Forewing: 17 mm. Locality temperature and humidity: 20° C and 60" respectively.

15. *Heodes virgaureae* L. Captured at 500-1600 m, in the districts of Florina, Drama and Thesprotis, in June, July. Length of Forewing: 17-19 mm. Locality temperature and humidity: 23°-36° C and 45"-64" respectively.

16. *Heodes ottomanus* Lefebvre. Captured in April and July in the districts of Thesprotis, Ioannina, Evros and the island of Thasos, from sea level to about 300 m. Length of Forewing: 13-16 mm. Locality temperature and humidity: 23°-36°C and 45"-64" respectively.

17. *Maculinea alcon* Schiff. Found at 950 m, in June, in the district of Drama. Length of Forewing: 18 mm. Locality temperature and humidity: 20° C and 60" respectively.

### *Hesperiidae*

18. *Carcharodus lavatherae* Esp. Captured in June, at about 950 m, in the district of Drama. Length of Forewing: 15 mm. Locality temperature and humidity: 20° C and 60" respectively.

19. *Spialia phlomidis* H.-S. Captured in August in the district of Attica, at 600 m. Length of Forewing: 13 mm. Locality temperature and humidity: 36° C and 35" respectively.

### References

- Coutsis, John, G. List of Grecian Butterflies. *Entomologist*, **102**: 264-268.
- Coutsis, John, G. List of Grecian Butterflies: Additional Records *Ent Record*, **84**: 145-151.
- Dacie, J. V. and M. K. and P. Grammatikos. Butterflies in Greece, May 1969. *Ent. Record*, **82**: 54-58.
- Dacie, J. V. and M. K. and P. Grammatikos. Butterflies in Northern and Central Greece, July 1971. *Ent. Record*, **84**: 257-266.
- Higgins, Lionel, G., and Riley, Norman, D. *A Field Guide to the Butterflies of Britain and Europe*, 1970, Collins, London.

---

STERRHA SACRARIA L. AND ORTHONAMA LIGNATA Hb. IN GLOUCESTERSHIRE IN 1973. — A fresh male specimen of *S. sacraria* was in my m.v.l. trap at Avening, Glos., on September 5th. Another appeared at m.v.l. at Tetbury, 4 miles away, on September 7th. Another rarity for Gloucestershire was the appearance of a specimen of *O. lignata* Hb. at Avening on September 9th — J. NEWTON, 11 Oxleaze Close, Tetbury, Glos.



## The Butterflies of the Shimba Hills

By D. G. SEVASTOPULO, F.R.E.S.

(Continued from Vol. 85 p. 266)

*Mycalesis safitza* Hew. — Common all through the year in all areas. Attracted to fruit bait. Larvae on Grasses.

*M. campina* Auriv., *subapicalis* Auriv. — Common in all areas throughout the year. Attracted to fruit bait. Larvae on Grasses.

*M. anynana* Btlr., *anynana* — Common all through the year in all areas. Attracted to fruit bait. Larvae on Grasses.

*Henotesia perspicua* Trim. — Common in the more open areas all through the year. Larvae on Grasses.

*Physcaenura leda* Gerst. — Common in all areas throughout the year, where grass grows in partial shade. Larvae on Grasses.

*Ypthima asterope* Klug — Common in open areas all through the year. Larvae on Grasses.

### NYMPHALIDAE

*Euxanthe tiberius* Gr. Sm. *tiberius*—Fairly rare all through the year in the shadier parts of the Makardara Forest. Fond of resting head downwards on the trunks of trees, often several together in quite a small area. Larvae on *Deinbollia* spp. (Sapindaceae).

*E. wakefieldi* Ward — Fairly common all through the year in both the Makardara and Marere Forests. Unlike *tiberius*, this species is a sun-lover. Larvae also on *Deinbollia*.

*Charaxes varanes* Cr., *vologeses* Mab.—Occurs all through the year, rarely in the Makardara Forest, more commonly in Marere, which is lower. Larvae on *Allophylus* spp. (Sapindaceae).

*Ch. acuminatus* Thur., *shimbanus* v. Som. — Fairly common all through the year in the Makardara Forest, the Marere Forest, presumably, is too low for it. Larvae on *Allophylus* spp. also

*Ch. candiope* Godt, *candiope*—Fairly common all through the year in all areas. Larvae on *Croton sylvaticus* (Euphorbiaceae) and probably other *Croton* spp.

*Ch. protoclea* Feist., *azota* Hew. — Not common in all areas, flying all through the year. Larvae on *Afzelia quanzensis* (Caesalpinaceae).

*Ch. lasti* Gr Sm. — Probably the commonest *Charaxes* all through the year in all areas. Larvae on *Julbernardia magnistipulata* and *Paramacrolobum caeruleum* (both Caesalpinaceae).

*Ch. jasius* L., *saturnus* Btlr. — Up to recently considered a subspecies of *pelias* Cr. Occurs all through the year, uncommonly in the Marere Forest, not recorded in Makardara. Larvae on numerous food-plants but not found in the Shimba Hills where it probably feeds on *Afzelia quanzensis* (Caesalpinaceae) and *Croton* spp. (Euphorbiaceae).

*Ch. castor* Cr., *flavifasciatus* Btlr. — Not common in all areas, occurring all through the year. Larvae on numerous food-plants but not found in the Shimba Hills, probably feeding there on *Afzelia quanzensis*.

*Ch. brutus* Cr., *alcyone* Stoneham—Previously considered to be ssp. *natalensis* Staud., but recently separated by Van Someren. Occurs commonly in all areas all through the year. Larvae on *Turraea* spp. (Meliaceae).

*Ch. violetta* Gr. Sm., *maritima* v. Som. — Recently separated as a good subspecies. Uncommon in all areas all through the year. Larvae on *Deinbollia* spp.

*Ch. bohemani* Feld. — Very rare in the Makardara Forest, less so in Marere. Recorded in January, February, July to October and December. Larvae on *Afzelia quanzensis*.

*Ch. cithaeron* Feld., *kennethi* Poult. — Common in all areas all through the year. Larvae on *Afzelia quanzensis*.

*Ch. pythodorus* Hew., *nesaea* Gr. Sm. — Very rare in the Makardara Forest, less so in Marere, probably most frequent in the Lower Shimba Forest. Records for all months except February, June and November.

*Ch. zoolina* Westw., *zoolina* — Very rare in the Makardara Forest, less so in Marere. Records for all months of the year. Larvae on *Acacia* spp. (Mimosaceae).

*Ch. jahlusa* Trim., *kenyensis* Jcy. & Talb.—Common in the Marere Forest but absent from Makardara. Occurs all through the year.

*Ch. pleione* Godt., *bebra* Roths. — Larvae common all through the year in the Makardara Forest, but imagines are rare. Also occurs in the Lower Shimba Forest but not in Marere. Food-plant *Acacia* sp.

*Ch. etesipe* Godt., *tavetensis* Roths. — Very rare in the the Makardara Forest, less so in Marere. Recorded in all months of the year except June and October.

*Ch. guderiana* Dew., *rabaiensis* Poult.—Fairly common in the Marere Forest, absent from Makardara, where the food-plant *Brachystegia* spp. (Caesalpinaceae) does not occur. Recorded for all months except November.

*Ch. viola* Btlr., *kirki* Btlr. — Uncommon all through the year on the outskirts of the Marere Forest. Absent from Makardara.

*Ch. contrarius* Weym., *contrarius*. — Rare on the outskirts of the Makardara Forest, less so in Marere. Occurs all through the year. Food-plant *Albizzia* spp. (Mimosaceae).

*Ch. ethalion* Bsd. — Uncommon on the outskirts of the Makardara Forest and in Marere. Occurs all through the year. Larvae on *Albizzia* spp.

All the above species, with the exception of *Ch. pleione*, are attracted to fermenting fruit and sap (both sexes) and the faeces of carnivora (males only).

*Cymothoe theobene* Dbl., *blassi* Weym. — One only in the Makardara Forest in July.

*C. coranus* Gr.Sm. — Common all through the year in the Makardara Forest, less so in Marere. Attracted to fermenting fruit.

*Euptera pluto* Ward, *kinungnana* Gr.Sm. — Fairly common all through the year in the Makardara Forest, less so in Marere. The female f. *rufa* Jcy. & Talb. occurs rarely. Attracted to fermenting fruit.

*Pseudathyma lucretioides* Carp & Jackson — Uncommon in the Makardara Forest all through the year. Basks in the sun fairly high up in trees, occasionally flying down to chase another butterfly.

*Euryphura achlys* Hpffr. — Fairly common all through the year in both the Makardara and Marere Forests. Also in the Lower Shimba Forest. Attracted to fermenting fruit.

*Euryphene chriemhilda* Staud.—Fairly common all through the year in both the Makardara and Marere Forests. Attracted to fermenting fruit. The larva feeds on Palms of various species, but I have never been able to induce females to lay.

*E. mardania* F., *orientis* Karsch — Uncommon in the Makardara Forest all through the year. Attracted to fermenting fruit.

*Euphaedra neophron* Hpffr., *littoralis* Talb. — Common throughout the year in both the Makardara and Marere Forests. Attracted to fermenting fruit. Larvae feed on *Deinbollia* spp. (Sapindaceae).

*E. orientalis* Roths. — Uncommon in the Makardara Forest all through the year. Attracted to fermenting fruit.

*Hamanumida daedalus* F. — Occurs occasionally in the Marere Forest. Recorded for all months except April. Attracted to fermenting fruit.

*Aterica aalene* Brown, *theophane* Hpffr. — Fairly common throughout the year in both the Makardara and Marere Forest. Attracted to fermenting fruit and wet mud. Larvae on *Quisqualis* and *Combretum* spp (Combretaceae).

*Pseudacraea boisduvali* Dbl., *trimeni* Btlr. — Not uncommon in both the Makardara and Marere Forests, occurring all through the year. Fond of basking in the sun fairly high up.

*Ps. eurutus* L., *rogersi* Trim. — Fairly rare in the Makardara Forest. Occurs all through the year.

*Ps. lucretia* Cr., *expansa* Btlr. — Common all through the year in all areas. The female f. *heliogenes* Btlr. occurs rarely. Attracted to fermenting fruit. Larvae on *Pachystela* sp. and *Sideroxuon diospyroides* (Sapotaceae).

*Neptis saclava* Bsd., *marvessa* Hpffr.—Common all through the year in all areas. Larvae on *Acalypha* spp. (Euphorbiaceae) and *Ouisqualis* spp. (Combretaceae).

*N. kariakoffi* Overlt. (*agatha* Cr.) — Common in all areas all through the year.

*N. rogersi* Eltr. — Rare in both the Marere and Makardara Forests. Recorded for all months except February, May and November.



*N. trigonophora* Btlr. — Uncommon in both the Makardara and Marere Forests. Unrecorded for July, August and December.

*N. alta* Overlt. — Fairly common in both the Makardara and Marere Forests all through the year.

*N. melicerta* Drury, *goochi* Trim. — Common in the Makardara Forest all through the year.

*Cyrestis camillus* F., *elegans* Bsd. — Uncommon in the Makardara Forest. No records for May and October. Rests with outspread wings on the undersides of leaves high up. Larva on *Ficus* spp. (Moraceae).

*Asterope garega* Karsch, *ansorgei* Roths & Jord. — Recorded from May to August in the Makardara Forest. Common when it occurs, but does not appear to be resident. Fond of sitting head downwards on the trunks of trees with folded wings. Attracted to fermenting fruit.

*Byblia ilithyia* Drury — Common all through the year in the Makardara Forest. Larvae on *Dalechampia* and *Tragia* spp. (Euphorbiaceae).

*B. acheloia* Wallgrn., *acheloia* — Common all through the year in all areas. This tends to be more of an open country species than the preceding. Larvae on *Dalechampia* sp. (Euphorbiaceae).

*Neptidopsis fulgurata* Bsd., *platyptera* Roths. & Jord. — Uncommon on the outskirts of both the Makardara and Marere Forests, avoiding the more shaded areas. Recorded for all months except May. Larva on *Dalechampia* sp.

*Eurytela dryope* Cr., *angulata* Auriv. — Very common in all areas all through the year. Attracted to fermenting fruit. Larvae on *Ricinus communis* (Euphorbiaceae).

*Hypolimnias misipus* L. — Common all through the year in all areas. Females mostly f. *inaria* Cr. Larvae on *Portulaca quadrifida* (Portulacaceae).

*H. deceptor* Trim., *deceptor* — Common in both the Makardara and Marere Forests. Recorded all through the year. Larvae on *Urera* sp. (Urticaceae).

*H. dubia* Beau., *mima* Trim. — Common in both the Makardara and Marere Forests. Recorded all through the year. Larvae on *Urera* sp.

*H. usambara* Ward — Rare in the Makardara Forest. Recorded for all months of the year except August. It is very spasmodic in appearance. Larvae on *Fleurya* sp. (Urticaceae).

*Salmis parhassus* Drury, *aethiops* Beau. — Fairly common all through the year in both the Makardara and Marere Forests. Larvae of this, and the next, species said to feed on *Asustasia* spp. (Acanthaceae), but I have never been able to induce females of either to lay thereon.

*S. anacardii* L., *nebulosa* Trim. — Common all through the year in both the Makardara and Marere Forests. Basks in the sun with outspread wings fairly high up.

*S. cacta* F., *amaniensis* Voss. — Rare in the Makardara

Forest, records for all the months of the year. Larvae said to feed on *Urera* sp. (Urticaceae).

*Catacroptera cloanthe* Cr., *cloanthe* — Uncommon in the more open areas around the Makardara and Marere Forests. No records for February, July or September.

*Precis natalica* Feld., *natalica* — Common in all areas all through the year. Larvae on *Asystasia* and *Barleria* spp. (Acanthaceae).

*P. terea* Drury, *elgiva* Hew. — Common in the Makardara and Marere Forests all through the year. Larvae on *Barleria* and *Asystasia*.

*P. antilope* Feist. — Rare in both the Makardara and Marere Forests. Records for January, May, June, September and December.

*P. clelia* Cr. — Common in all areas all through the year. Larvae on *Asystasia*.

*P. hierta* F. — Uncommon in all areas all through the year. Larvae on *Barleria* and *Asystasia*.

*P. orithya* L., *madagascariensis* Guen. — Occasional specimens from both the Makardara and Marere Forest outskirts. No records for April, August or November.

*Vanessa cardui* L. — Very occasional straggler in all areas. Recorded for all months except February, March and November.

*Lachnoptera ayresii* Trim. — Fairly common in the Makardara Forest all through the year. Larvae on *Vismia orientalis* (Hypericaceae).

*Phalanta columbina* Cr., *columbina* — Common in all areas all through the year. Almost certainly re-inforced by migration. Larvae on *Dovyalis* sp. (Flacourtiaceae) and *Maytenus* sp. (Celastraceae).

## ACRAEIDAE

*Bematistes aganice* Hew., *montana* Btlr. — Uncommon in the Makardara Forest. Records for April to June and August to October.

*B. adrasta* Weym., *adrasta* — Rare in the Makardara Forest. Records for August and October to February.

*B. epaea* Weym., *epitellus* Staud. — Appeared suddenly in small numbers in the Makardara Forest in December 1966 and again in August 1967, thereafter disappearing again. At the same time it suddenly appeared at Amani in Tanzania.

*Acraea zonata* Hew. — Rare in the open areas around the Makardara Forest and alongside the track leading to the Lower Shimba Forest. Recorded for all months except January and March.

*A. rabbaiae* Ward, *mombasae* Gr. Sm. — Common all through the year in the surroundings of the Makardara Forest.

*A. satis* Ward — Fairly common all through the year in the Makardara Forest.

*A. damii* Vollenhoven, *cava* Gr. Sm. — A single specimen in the Makardara Forest in April.

*A. quirina* F., *rosa* Eltr. — Not uncommon in the Makardara Forest. Recorded from April to November.

*A. terpsichore* L., *neobule* Dbl. — Uncommon in the areas around the Makardara Forest, common in Marere. Recorded for all months except November.

*A. matuapa* Gr. Sm. — Separated recently from the preceding by R. H. Carcasson (1961, *The Acraea Butterflies of East Africa* (Lepidoptera, Acraeidae)) — Uncommon in the surroundings of the Makardara Forest, common in Marere. Records for January to March and May to September.

*A. admatha* Hew., *admatha* — A single specimen outside the Makardara Forest in May.

*A. insignis* Dist., *insignis* — Common in the Makardara Forest all through the year. Larvae on *Adenia* sp. (Passifloraceae).

*A. zetes* L., *acara* Hew. — Uncommon outside both the Makardara and Marere Forests. Recorded from March to September and in December.

*A. chilo* Godm., *chilo* — Uncommon in the surroundings of the Makardara and Marere Forests. Records for January, February, May and July to October.

*A. anemosa* Hew. — Fairly common in the surroundings of the Makardara and Marere Forests. Recorded for all months except November.

*A. egina* Cr., *areca* Mab. — Rare in the Makardara Forest. Singletons only in April and September.

*A. petraea* Bsd. — Rare in both the Makardara and Marere Forests. Recorded from July to September.

*A. braesia* Godm. — Rare on the outskirts of the Makardara and Marere Forests. Records for all months except January, April, July, October and November.

*A. oncaea* Hpffr., *oncaea* — Common in the Makardara Forest all through the year. Varies considerably. Larvae on *Adenia* sp. (Passifloraceae).

*A. pudorella* Auriv., *pudorella* — A single specimen in the Marere Forest in December.

*A. equatorialis* Neave, *anaemia* Eltr. — Rare on the outskirts of the Makardara Forest. Records for January, March, June, August, October and November.

*A. natalica* Bsd., *natalica* — Fairly common on the outskirts of the Makardara and Marere Forests. Recorded all through the year.

*A. encedon* L., *encedon* — Rare on the outskirts of the Makardara Forest. Recorded for all months except February, October and November. Larvae on *Commelina* spp. (Commelinaceae).

*A. eponina* Cr., *eponina* — Common on the outskirts of the Makardara and Marere Forests. Very variable. Larvae on *Hermannia* sp. (Sterculiaceae) and *Triumfetta* (Tiliaceae).  
(to be continued)



## Notes and Observations

LYSANDRA CORIDON (PODA) AND *L. BELLARGUS* (ROTT.) IN NORTH WALES?—In 1971, I was informed by Mr J. Richens that he caught a female specimen of *L. coridon* during 1970 near Llangod in north-east Anglesey. This butterfly he had become familiar with in southern England that very same season. However, not realizing the zoogeographic significance of the discovery the specimen had been released! Mr Richens had previously obtained the information from a Mr Lyons of Colwyn Bay that both *L. coridon* and *L. bellargus* had been introduced to the area some thirty years beforehand by a Mr Scott. This summer, I visited Mr Lyons in the hope of compiling useful zoogeographic information on the artificial introductions, but little data of value was forthcoming.

Though Mr Lyons had visited the area, and had observed and taken both insects there, he failed to produce any specimens taken during his visits, and to locate the colonies on Ordnance Survey sheet 107.

Two basic factors associated with the species in Britain are available in the area concerned. The lithology is of calcareous strata, Carboniferous limestone, and *Hippocrepis comosa* L. is present. However, short visits to the area during the flight periods failed to disclose beneficial habitats or either species. Thus factual evidence of the introduction of both insects and the later capture of specimens is lacking. It will be recalled that hitherto *L. coridon* has had a dubious association with north Lancashire and south Westmorland. (See Wright 1940, *Entomologist* Vol., 73, pp. 217-221 for sound conclusions on the matter.) The above account will at least provide some framework for any future records of the two butterflies that may derive from north-east Anglesey.—R. L. H. DENNIS, University of Durham, Department of Anthropology, South End House, South Road, Durham.

ACHERONTIA ATROPOS L. AND OTHER MIGRANTS IN S. DEVON.—A number of regular immigrant species have been taken in South Devon during the late summer of 1973 and autumn. August and early September gave considerable promise but October was not as good as might have been expected possibly due to below average temperatures. At Ermington a fresh specimen of *Acherontia atropos* Linn. appeared at mercury vapour light on 23rd August followed by *Pyrausta nubilalis* Hübn. on 27th August. *Leucania vitellina* Hübn. appeared on 2nd September and again on the 4th. Six specimens of *Rhodometra sacraria* Linn. were seen between 4th and 6th September. I was away in Cornwall from 7th September and I saw one on the 16th near Wadebridge but no more following my return on 22nd September. Together in the light trap on 5th September were four *sacraria* and one *Vanessa cardui* Linn.

*Nycterosea obstipata* Fab. may well have bred locally as specimens were taken on September 3rd (1), 7th (1), November 4th (2), 18th (1), and 24th (1). A single *Cosymbia puppillaria* Hübn. came to light on 6th October

A colleague, Lt.-Col. Carfrae found a full-grown larva of *Herse convolvuli* Linn. at Ivybridge school in the vicinity of the foodplant, Bindweed (*Calystegia sepium*) in late September. Further enquiries amongst pupils revealed a further four full-grown larvae and there were reports that more had been seen. To date one moth has been reared successfully, emerging on 10th November 1973.—ALAN KENNARD, 4 Erme Park, Ermington, Ivybridge, Devon. 28.xi.73.

*HYLES GALLII* ROTT., *ORIA MUSCULOSA* HUBN. AND *RHYACIA SIMULANS* HUFNAGEL IN OXFORDSHIRE. — In what appears to have been a record year for migrants, I am pleased to be able to record the capture of two perfect specimens of *Hyles gallii* Rott. on the night of 30th-31st July 1973 in my 80 watt m.v. trap at Chipping Norton, Oxfordshire. On the same evening one specimen of *Oria musculosa* was recorded. These records are the first for both species in that area. *Rhyacia simulans*—another rather local moth—has continued to appear there in constant numbers, the highest number recorded in one evening being eleven. — P. D. J. HUGO, Rothamsted Manor House, Harpenden, Herts., AL5 2BG.

*SYNGRAPHA INTERROGATIONIS* (L.) IN NORFOLK—After reading the note by Baron de Worms on this species in Norfolk in the April 1973 issue, I turned up my records for this area of Norfolk for 1972. I was camping over a period of three weeks within a few miles of Cley-by-Sea and noted two specimens of *interrogationis* at Salthouse Heath on 28th July and a further specimen on Salthouse Beach on 30th July. At the time I did not think there was anything spectacular about these captures as there was heathland close by. However, I set two of the specimens and see that both correspond exactly to the description given in the April 1973 note. Although I continued to be in the area for the first two weeks of August, no further *interrogationis* were noted. — T. W. HARMAN, 26 Highfield Road, Chesterfield, Derbyshire. 25.xi.1973.

*HYLES GALLII* ROTT. IN BRITAIN DURING 1973: AN APPEAL In view of the remarkable number of Bedstraw Hawkmoths that have appeared in the British Isles in 1973, it has been considered of special interest to correlate and even map as many records as possible both of the imagines and larvae so as to compare this last season with those of 1888 and 1955, both prolific years for the hawkmoth in Britain. Will anyone who has come across this insect and its larva in the wild, be good enough to send details of date and location of capture to me at the address below, particularly those records which have not been published in the literature. — C. G. M. de WORMS, Three Oaks, Shore's Road, Woking, 18.xi.73.

NYCTEROSIA OBSTIPATA FAB. AT WOKING.—I think it of interest to report the capture of a female of this small migrant, the Gem, in my m.v. trap here on November 1st 1973 since not many have been recorded this year and it is nearly ten years since I last saw it here.—C. G. M. de WORMS, Three Oaks, Shore's Road, Woking.

CHLOROCLYSTIS CHLOERATA MAB. AT LIGHT IN SURREY. — On June 30, 1973 while collecting with mercury-vapour light near Bisley, a small moth alighted on the sheet. It turned out to be the Sloe Pug which has proved very prevalent in the larval state over a large part of the south of England, but I am not aware that there have been many records of its capture in the wild at light.—C. G. M. de WORMS, Three Oaks, Shore's Road, Woking.

EUPITHECIA PHOENICEATA (RAMBUR) IN KENT—Between the years 1960-66 I ran a moth-trap nightly (at first tungsten, then m.v.) in the garden of my parents house in Orpington. On the night of 29th-30th August 1965 I recorded, what I then took from the shape of the wings, to be *E. nanata angusta* (Prout). The specimen was duly set, but it wasn't until 1969 that its true identity was established. In August of that year I was to take *E. phoeniceata* in one of its known footholds in Torquay. Later that winter when sorting out my Pugs, I found that the Orpington specimen was in fact a female *phoeniceata*. At the time it must be remembered that the old 'South' had no figure of this insect, and a young lad hardly expects newly discovered residents to come to a mere garden trap!

This record although mentioned to friends at the time was never published and was soon forgotten.

This year however, at the B.E.N.H.S. annual exhibition, Paul Sokoloff, who now also runs a trap in Orpington, mentioned to me that he too had taken *phoeniceata* on the night of 6-7th September 1973.

Our next door neighbour at the time of my capture had three large *Cupressus* trees in his front garden and a *Cupressus* hedge was also being cultivated a few houses along the road. I know of no other source of foodplant that was in the area however and consider it fortunate that I was situated at such proximity to a possible place of origin. No other specimens were however seen. Paul Sokoloff's specimen in perfect condition was taken at his house on the outskirts of Orpington, an area devoid of *Cupressus*. This insect could be a traveller, its rate of colonisation of the South would be conducive to this idea. It might repay people interested in its distribution to collect in some of the large landscaped parks and gardens where *Cupressus* has been long established to determine the extent of its range. — Dr I. A. Watkinson, 2 Fairleas, Sittingbourne, Kent.



EUBLEMA OSTRINA HÜBNER IN SOUTH DEVON IN 1973.—On the night of 26th/27th August 1973 a fresh specimen of *Eublemma ostrina* Hübner ab. '*carthami* H.-S. came to mercury vapour light at Ermington. To my knowledge this is the tenth record for the county since the first British specimen was recorded from Bideford in 1825. It is interesting to note that of the five records since 1926 four are referable to ab. *carthami*. The specimen will be lodged in the collection of Devonshire lepidoptera, and other insects, based on the collection of the late Mr Frank Lees which is now housed in Exeter University and maintained by the Devonshire Association.—ALAN KENNARD, 4 Erme Park, Ermington, Ivybridge, Devon. 28.xi.73.

BLASTOBASIS DECOLORELLA WOLLASTON (LEP.: BLASTOBASIDAE) ATTACKING STORED APPLES. — Shortly after picking my Bramley apples this year, I noticed signs of larval feeding amongst the stored fruit, but was at first unable to find the offending larva. Eventually I found a larva which was neither *Cydia pomonella* (Linnaeus) nor *Cacoecimorpha pronubana* (Hübner) nor *Hofmannophila pseudospretella* (Stainton). It was tinted a purplish brown on the dorsal region and had warty dots along its back, giving me the impression that it was *Blastobasis decolorella*. To make sure, I handed the specimen to Mr David Carter of the British Museum (Natural History) for examination, which he kindly undertook to do, giving me his verdict that the larva was in fact *decolorella*.

The method of attack was to eat off a small patch of the apple peel at the point of contact between two apples, in irregular patches roughly about half an inch in diameter, and in some cases, short borings into the flesh of the apple were made, but these did not make for the core as does *pomonella*, nor was there frass thrown clear of the working as in the case of *pronubana*.

It has since occurred to me that infestation might have occurred while the fruit was still on the tree, many of the apples having the remains of unfertile florets spun round the stalk with evidence of larval feeding. Though I did not find any larvae, this would most probably be the feeding places of *Argyresthia cornella* (Fabricius). Other apples, however, had a small leaf spun to the surface with a small degree of eaten skin under it, which may have been the initial feeding place of *decolorella*.

I have reared *decolorella* ab ovo on four or five occasions, providing "cigars" of mixed willow and bramble leaves rolled together and tied with cotton. These were freely accepted by the female moth as suitable for oviposition, and the resultant larvae fed steadily in them, only requiring replacements as they exhausted the existing food supply, say about twice in their larval lifetime.—S. N. A. JACOBS, 54 Hayes Lane, Bromley, Kent, BR2 9EE. 8.xi.1973.

**MONOPIS MONACHELLA (HUBNER) (LEP.: TINEIDAE) IN SUFFOLK.**—On 2nd August 1973 I was examining the contents of my m.v. trap in an outhouse in my garden when I noticed an attractive black and white tineid on the window-ledge. As it was quite unknown to me I searched in the late Bishop Whittingham's collection which is housed in Norwich Castle Museum, but without success. The moth was finally identified by Dr J. D. Bradley and Mr E. S. Bradford at the Annual Exhibition of the B.E.N.H.S. as *Monopis monachella*. Both Meyrick and Stainton give Cambridge as the only known locality, but Claude Morley, *Lepidoptera of Suffolk* (1937) p. 208, states that among the tineids missing from the Suffolk list, *M. monachella* and others "surely await discovery".

As far as I am aware this is the first example to be found in Suffolk, but whether it was attracted to my trap or had bred in the outhouse I am unable to say. The larva is said to feed on dry skins, birds' nests and refuse.—H. E. CHIPPERFIELD. The Shieling, Palmer's Lane, Walberswick, Southwold, Suffolk, 14.xi.1973.

**ACHERONTIA ATROPOS LINN. AND HYLES GALLII ROTTEMBURG IN SOMERSET AND DORSET 1973.**—During this year, a fine one for many migrant species, we have had no less than three *A. atropos* brought in to the Butterfly Farm at Over Compton. The first two arrived as larvae, found by a gentleman on his potatoes in South Petherton, Somerset. These pupated successfully and two fine females subsequently emerged. The third specimen, a male, flew into a friend's house in Castle Cary, Somerset.

In July Mr David Rushen and myself were collecting near Sherborne and were very pleasantly surprised to find a large female *H. gallii* at rest in some long grass. Unfortunately, no eggs were obtained. Also in July another friend, Mr Mike Murless, witnessed a good migration of *M. stellatarum* Linn. coming off the sea at Eype near Bridport.—B. J. TAYLOR, 4 Wyke Farm Cottages, Wyke, nr. Sherborne, Dorset.

**EUPITHECIA INSIGNIATA HUBN (PINION-SPOTTED PUG) IN BERKS.**—During the night of 26th/27th May 1973 I took this species at u.v. light, together with *Selenia lunaria* Schiff. (Lunar Thorn) and 12 *Deilephila porcellus* Linn. (Small Elephant Hawk) on chalk woodland near Streatley. While walking around this locality a month later, I noticed several old apple or crab-apple trees which might have been the foodplant of the former insect.

New species turning up at u.v. light in my back garden in Bucklebury, Berks., in 1973 include *Hadena contigua* Schiff. (Beautiful Brocade) on 25th/26th June, *Rhyacia simulans* Hufn. (Dotted Rustic) on 1st/2nd August, *Parascotia fuliginaria* Linn. (Waved Black) on 10th/11th August, and *Plusia festucae* Linn. (Gold Spot) on 19th/20th August 1973.—P. A. DAVEY, Hillside, Hatch Lane, Bucklebury, Berks., 25.xi.73.





PLATE III



*EUPITHECIA PHOENICEATA* (RAMBUR) AND *LITHOPHANE LEAUTIERI* (BOISDUVAL) IN SUSSEX.—In August 1973, I ran my m.v. trap on two week-ends at Aldwich Bay, Bognor Regis. On each of three nights when it was operating, August 9th, 11th and 17th, I noted some half dozen *Eupithecia phoeniceata* were attracted. This estate has a large amount of *Cupressus macrocarpa* as matured trees, and *Lithophane leautieri* is plentiful there at light in early October.—RONALD P. PICKERING, 4 St Mary Abbot's Terrace, Kensington, W14 8NX.

## Obituary

### JOHN S. TAYLOR 1900-1973

Born in Londonderry in 1900, J. S. Taylor entered Edinburgh University in 1921, where he studied three years for the degree of M.A. In 1921 he read British History, Zoology and Political Economy, obtaining certificates in all three. In his second year he read and obtained certificates in Moral Philosophy and Scottish History, in which he took the Class Prize. In his third year he read Botany and Zoology, taking certificates at the advanced level. He did so well in the latter that he was accepted for a course in Entomology at the Imperial College of Science and Technology, South Kensington, under the famous Professor H. Maxwell Lefroy 1924-1925, which led to his appointment in South Africa as entomologist in the Division of Entomology (now Plant Protection Research Institute) Department of Agriculture, having married Bessie Rankin on 12th December 1925.

He was stationed at Barberton, Transvaal until about 1932, being engaged with cotton insect problems, when he went for a year to Pretoria where the initial work on biological control of Cactus was carried out. From 1933 to 1934 he was stationed at Graff Reinet, Cape Province, where he undertook detailed investigations on *Cactoblastis cactorum*, *Dactylopius opuntiae*, and other imported Cactus insects. At the end of 1944 this laboratory was closed, and he was transferred to Port Elizabeth, Cape Province, as Eastern Cape Entomologist. His official projects there concerned timber insects (*Holotrupes bajulus*, *Cryptotermes brevis*, and others), Forest insects, Cactus insects, and those affecting agriculture in the region.

He lost his wife in 1961 and remarried a boyhood friend, the widowed Mrs Ethel Habershon of Northern Ireland, in November 1962. In 1963 he retired, and resided in several places including Wilderness, C.P., Hilton, Natal, and then he returned to the United Kingdom, residing for a time at Crail, Fife. This return proved to be a sad mistake; the exposed position of his home at Crail was too much for him, and after failing to find more suitable quarters, he decided to return to South Africa, but by that time, his health was suffering.

While in Scotland, he donated his collection to The Royal Scottish Museum, Edinburgh, and this included much interesting material derived from his work. He and his wife returned to Port Elizabeth in 1971. Not long after his return to Port Elizabeth his condition worsened, and finally he went into hospital, where he died on 7th October 1973.

I had maintained a sporadic correspondence with him over many years and was delighted to have the opportunity for meeting him and his wife when they were passing through London on their return journey to Africa, and I found him to be the delightful personality described by his friends.

J. S. Taylor wrote many papers and notes, including five series of papers entitled "Notes on Lepidoptera of the Eastern Cape Province", published in the *Journal of the Entomological Society of South Africa* between 1949 and 1965, and he was elected Vice President of that society on several occasions. He published many other papers in that journal, and also in *The Entomologist* and *The Entomologist's Record*, mostly on aspects of the life histories of various African Lepidoptera, but also on some of the interesting habits of various African bees: many were accompanied by excellent photographic illustrations.

J. S. Taylor was also a keen ornithologist and contributed several papers on the subject: a grant from the C.S.I.R. enabled him to publish a monograph "Notes on the Birds of Inland Waters in the Eastern Cape Province, with special Reference to the Karoo" in *The Ostrich* (28(1) Jan. 1957).

To his widow and to his sister, we offer our very sincere sympathy, together with our assurance that we too share some of that grief, for the entomological world has indeed lost a prominent worker and a loveable personality. The kind assistance of friends and relations in supplying information on Mr Taylor's career is evidence of his very great popularity. —S.N.A.J.

## Current Literature

**A Survey of the Macro-Lepidoptera of Croydon and North-East Surrey** by L. K. and K. G. W. Evans. 136 pp. (including index, 9 pp), folding map and 24 distribution maps, 1973. £1 (this forms *Proc. Croydon nat. Hist. Sci. Soc.*, XIV: 273-408).

The compilers state their prime object has been to produce an account of the distribution of the species within the limits of the survey, and this they have ably achieved. Broadly speaking, their survey is the outcome of a search for all records of Macro-lepidoptera observed in the area since 1950, and of a critical examination of these records together with the addition of much material based on their own field-work.



The system of treatment of the records and their detailed yet concise presentation is a notable feature, as is the documentation which is remarkably good with each of the many hundreds of records accompanied by its authority or published reference. We note too that the compilers made a particular point of recording the natural foodplants upon which species have been found in the survey area, thus adding much to the interest and value of the work. The distribution maps are illuminating and we regret their high cost prohibited the inclusion of many more of these.

For a survey of a comparatively small area, covering a relatively short period and treating of only a part of the Order, this is the best authenticated and most attractively presented "local list" we have seen, and we hope the compilers may some day issue a similar account of the Micro-lepidoptera.—J.M.C.-H.

**Butterflies of Georgia** by Lucien Harris, Jr. xxii + 326pp., including 11 coloured and 14 other plates, maps, bibliography and index. University of Oklahoma Press, 1972. £4 U.K. agents: Bailey Bros & Swinfen Ltd., Warner House,, Folkestone, Kent

This attractive book is the third and greatly expanded author's List of the Butterflies of the State of Georgia, and contains a Foreword by Alexander B. Klots.

Georgia is especially interesting to the Lepidopterist for a number of reasons, one of which is its association with the Englishman John Abbot whose observations formed the basis of J. E. Smith's magnificent two volume work, *The Rarer Lepidopterous Insects of Georgia* published in London in 1797.

The purpose of this book is to cover and illustrate every species now known to occur in Georgia. This coverage includes information on distribution, life history, foodplants, habitat, localities and dates of capture. An important feature is the fact that an authority is cited for every record. There is a useful distribution chart which lists the month or months of occurrence of each species and the regions in which they have been found. The illustrations which are virtually all reproduced from photographs, are on the whole very good indeed. The book is of handy size, nicely produced in cloth, well printed and on good quality paper.—J.M.C.-H.

**Butterflies presented by Saruman**. 36pp., 12 pls., 42 figs. Saruman Butterflies, England, 1973. Text by Paul Smart; additional material and line drawings by Chris Samson. A4 horizontal format.

This book marks an interesting departure from the recent spate of low-priced "picture-books" of butterflies: it is primarily a dealer's catalogue—hence the low price of 85p—but

at the same time it strives to be informative and useful and I believe it succeeds admirably in this respect.

The first four pages deal with the structure of Lepidoptera in simple terms, life history, pattern types, significance of cryptic colouration and mimicry and seasonal and geographical variation. This section is amazingly comprehensive. It is followed by a further section on the study of Lepidoptera, dealing with the earliest entomological works to appear in this country, the advent of binomial nomenclature, fieldwork, rearing, collecting, preservation and arrangement of collections and conservation. The line drawings here, although good, are a little small and I would have preferred to have seen the Comstock-Needham system of venational nomenclature used in the venational diagram rather than the numerical system. The introductory portion of the book is followed by a selective but good bibliography.

The remaining twenty-six pages are a priced catalogue of 1100 species of Lepidoptera, displays, books and equipment. The twelve colour plates (which include the covers) display some 200 identified species: four of the plates are devoted to books, displays and equipment. The catalogue of species contains up-to-date and reliable nomenclature with the exception of *Ornithoptera* where Fruhstorfer's generic names are retained and *Ornithoptera paradisea* Staudinger is listed as "*Schoenbergia schoenbergi*". The wingspan range, a brief description, the region of origin and the price of each species is given. A useful sketch of wing shape and venation precedes each family. The catalogue is preceded by an explanation of the six zoographical regions (sic) which are used to indicate the region of origin of the species offered for sale. The map of the major zoogeographic regions is not accurate. Wallace's or Weber's line could have been chosen to separate the Oriental and Australasian regions; instead there is a no-man's land encompassing Sumatra, Java, Borneo and New Guinea; Hawaii becomes a seventh region. The fact that the region of origin of a species may not be the only region inhabited is not made clear: *Danaus plexippus* is listed as a Nearctic species despite its presence in Australasia and similarly, *Hypolimnys bolina* is listed as Oriental.

The quality of the colour printing in this book (by Robert Stace & Co.) is first class but very unfortunately one side of the sixth and seventh central plates is out of focus and this would appear to be a fault of the original photographs. Despite minor lapses the standard of this colourful and pleasing book is very high.—G.S.R.

---

CORRECTION—In the heading of my recent Review of "The Horse Flies of Europe (Diptera, Tabanidae) by Milan Chvála, Leif Lyneborg & Josef Moucha 1972. Entomological Society of Copenhagen" the following information was unfortunately omitted:—"Sole Agent E. W. Classey Limited. £9".

P. J. Chandler



## **Exotic Entomological Specimens**

**LEPIDOPTERA — COLEOPTERA — MISCELLANEOUS  
INSECTS OF THE FINEST QUALITY WITH DATA**

**20 page Illustrated Catalogue, 20p**

**R. N. BAXTER**

**16 BECTIVE ROAD, FOREST GATE, LONDON, E7 0DP.  
ENGLAND**

**FOR A PERSONAL AND INTERESTED SERVICE**

**In your replies please mention "The Entomologist's Record"**

## **ENTOMOLOGICAL CABINETS**

**Ten Drawer Unit Insect Sections**

---

*Sole manufacturers of the "Hill" Interchangeable  
Unit System formerly produced by J. J. Hill & Son Ltd.*

---

**R. Cattle, Limited**

*Precision Woodworkers*

**P.O. BOX NO. 1**

**Oxford Road, Gerrards Cross, Bucks.**

**Tel. Gerrards Cross 87131 (4 lines)**



---

## **LIVESTOCK**

**SILKMOTHS—British and Foreign Hawk Moths**

**SILKWORMS—Stick Insects, etc.**

My 16 page illustrated catalogue for 1974 describes many species and includes list of food plants, etc.

**Catalogue 15p. Overseas \$1.00 (or equivalent) sent by Air Mail.**

### **R. N. BAXTER**

**16 Bective Road, Forest Gate, London, E.7, ODP, England**

*In Your Replies Please Mention The Entomologist's Record*

---

### **FOR THE ENTOMOLOGIST**

Apparatus, Books, Cabinets and Set Specimens

Price lists of the above are issued from time to time so if you would like to receive regular issues please send me a postcard stating your interests

---

### **L. CHRISTIE**

**137 Gleneldon Road, Streatham, London, S.W.16, 2BQ, England**

(Postal business only)

*Official agent for publications of the Amateur Entomologist's Society*

---

the **BUTTERFLY FARM LTD. (Founded 1894)**

**Bilsington, Ashford, Kent England TN25 7JW. Tel. Ham St. 2513**

---

As the oldest farm in the world we are justly proud of our reputation as suppliers of the finest entomological materials.

For livestock and preserved specimens from all over the world; books new or old; breeding, storage and collecting equipment; educational displays, please write for lists and details of our Mailing Index.

We urgently need suppliers of surplus collections, books and cabinets, and also reliable suppliers of livestock.

Visitors especially welcome to look around the Butterfly Farm, please phone in advance. See our living and museum displays and our British Wildlife Sanctuary—to which a small charge will go.

---

# SARUMAN BUTTERFLIES

58 HIGH STREET, TUNBRIDGE WELLS, KENT

Telephone: Tunbridge Wells 31926

We offer an unrivalled personal service to the amateur collector and professional entomologist. British and Tropical Lepidoptera supplied, common and rare; also cabinets, equipment, books, prints, etc.

Catalogue of 1000 species (200 shown in colour), 85p + 10p postage

We are open daily except Wednesdays and Sundays

**Note**—We are always anxious to purchase surplus butterflies, books and complete collections, especially British. Highest prices paid

Please Mention the *Entomologist's Record*

## BRITISH NATURALISTS' ASSOCIATION



has twenty active branches in Britain and a world-wide membership. Its official organ, *Country-Side* (published three times a year), is the oldest-established British magazine devoted to general natural history

Membership subscription 75p per annum

Full details and application form obtainable from:

B.N.A., 'Willowfield', Boyneswood Road, Four Marks, Alton, Hants

---

## THE NATURALIST (founded 1875)

*A Quarterly Illustrated Journal of Natural History*

Edited by W. A. SLEDGE, Ph.D., B.Sc.

Annual subscription: £2.00 (post free)

Single numbers 50p

*Separates of the collected instalments of the:—*

### LEPIDOPTERA OF YORKSHIRE (Macrolepidoptera)

which appeared serially in *The Naturalist* (1967-1970) are also available on application. Price 50p, plus 4p postage

**The Editor of the Naturalist,**

Department of Botany, The University, Leeds, LS2, 9JT

---

## THE PROFESSOR HERING MEMORIAL RESEARCH FUND

---

The British Entomological and Natural History Society announces that awards may be made from this Fund for the promotion of entomological research with particular emphasis on:

- (a) Leaf miners,
- (b) Diptera, particularly Trypetidae and Agromyzidae,
- (c) Lepidoptera, particularly micro-lepidoptera,
- (d) General entomology,

in the above order of preference, having regard to the suitability of candidates and of the plan of work proposed.

Awards would be made to assist travelling and other expenses necessary for field work, for the study of collections, for attendance at conferences, or, exceptionally, for the costs of publication of finished work. In total they are not likely to exceed £150 in 1974.

Applicants need not be resident in the United Kingdom, and research in any part of the world may qualify.

Applicants should send a statement of their qualifications, of their plan of work, and of the precise objects and amount for which an award is sought, to R. F. BRETHERTON, C.B., M.A., F.R.E.S., Hon. Treasurer, Folly Hill, Birtley Green, Bramley, Guildford, Surrey GU5 0LE, as soon as possible and **in any case not later than 31st March 1974.**

---

## THE AMATEUR ENTOMOLOGISTS' SOCIETY

---

The Society was founded in 1935 to cater especially for the younger or less experienced Entomologist.

For full details of publications and activities, please write (enclosing 3p stamp to cover postage) to:—**R. D. HILLIARD**, Hon. Advertising Secretary, A.E.S., 18 Golf Close, Stanmore, Middlesex.

---



---

## EXCHANGES AND WANTS

---

*For Sale.*—Separates of "Emmet's Notes on some of the British Nepticulidae". Price 35p per copy. Printed covers for the collection of 5 parts.—Apply to S. N. A. Jacobs, 54 Hayes Lane, Bromley BR2 9EE, Kent.

*Request for Information* — Hothfield Local Nature Reserve, Kent (TQ/9645). I am preparing a paper on the insects of Hothfield LNR for presentation at a symposium on the area to be held in April 1974 (full details:—G. H. Morgan, 1 Somerfield Close, Maidstone, Kent.) I would be very grateful to receive any records of even common species of lepidoptera, or indeed any insect groups, not included in J. M. Chalmers-Hunt's account on the Lepidoptera of Kent (Ent. Rec. (1960), 72, 41 *et seq.*), in the compilation of Dr. E. Scott (Trans. Kent Field Club (1964) 2), or in the Kent Education Committee Booklet: Environmental Studies at Hothfield (this booklet is available from Mrs B. Dodds, Fairbourne Mill, Harrietsham, Kent)—Full acknowledgement will of course be made.—J. C. Felton, 20 Gore Court Road, Sittingbourne, Kent, ME10 1QN.

*Back numbers*—Our supplies of certain back numbers are now a little reduced and we would be willing to buy in a few copies of Vols.: 75, 77, 79, 82 and 83 at subscription rates. Due to an error there are now no further stocks of the January 1973 issue, we would therefore be indebted to anyone who could part with this issue.—S. N. A. Jacobs, 54 Hayes Lane, Bromley, Kent.

*Celerio galii*—*The Bedstraw Hawkmoth*—I have records of four *Celerio galii* being caught in July including one on the Ocean Weather Ship 'Weather Monitor' stationed some 400 miles west of Scotland and 200 south of Iceland. I understand that other specimens of this immigrant Hawkmoth have been caught and would welcome details of date, time and place of any captures. — R. A. French, Entomology Department, Rothamsted Experimental Station, Harpenden, Hertfordshire AL5 2JQ.

*For Sale* — Very high quality 16 drawer polished mahogany cabinet, now a valuable antique, bearing the name 'Watkins and Doncaster, 36 Strand, London, W.C.' With belection-moulded semi-circular head panelled door and lock, moulded plinth and top. Almost as new internally and in beautiful condition. Airtight drawers with concealed slots all round, size 18"×18"×2" deep, all recently recorked.—Height 3'6", depth 1'9½", width 1'9½" overall. £250. A. P. Gainsford. Tavistock 3203.

*Records of Sesiidae* — In preparing the material on clearwings for Vol. 2 of The Moths and Butterflies of Great Britain and Ireland (Editor John Heath), I would welcome recent records of any of the 15 known species. Precise details of localities are not required but only sufficient information to enable me to relate a record to a particular vice-county. Would subscribers having the required information kindly reply to: — B. R. Baker, Reading Museum and Art Gallery, P.O. Box 17, Town Hall, Reading, Berkshire, RG1 1QN.

---

# THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

(Founded by J. W. TUTT on 15th April 1890)

---

*The following gentlemen act as Honorary Consultants to the magazine:*

*Orthoptera:* D. K. Mc. E. KEVAN, Ph.D., B.Sc., F.R.E.S., *Coleoptera:* A. A. ALLEN, B.Sc.; *Diptera:* E. C. M. d'ASSIS-FONSECA, F.R.E.S.

---

## TO OUR CONTRIBUTORS

All material for the TEXT of the magazine must be sent to the EDITOR at St Teresa, 1 Hardcourts Close, West Wickham, Kent.

ADVERTISEMENTS, EXCHANGES and WANTS to Dr IAN WATKINSON, "Windrush," 2 Fairleas, Sittingbourne, Kent. Specimen copies supplied by Dr Ian Watkinson on payment of 40p or sterling equivalent which will be taken into account if the person in question becomes a full subscriber.

Subscriptions should be sent to the Treasurer, A. C. R. REDGRAVE, 2 Connaught Way, Tunbridge Wells, Kent, England.

Enquiries regarding Back Numbers, Volumes and Sets of Volumes, also notification of changes of address to S. N. A. JACOBS, 54 Hayes Lane Bromley, BR2, 9EE, Kent.

REPRINTS: 25 copies, taken straight from the magazine are sent gratis to contributors of articles; these may contain extraneous matter. More formal reprints from re-set type may still be had at cost price. and orders for these should be given, at the latest, with the return to the Editor of the corrected proof.

ILLUSTRATIONS are inserted on condition that the AUTHOR DEFRAYS THE COST.

Contributors are requested not to send us Notes or Articles which they are sending to other magazines.

All reasonable care is taken of MSS, photographs, drawings, maps, etc., but the Editor and his staff cannot hold themselves responsible for any loss or damage.

---

## SPECIAL NOTICE

The Editor would be willing to consider the purchase of a limited number of certain back issues.

---

# TREASURER'S NOTICE

The annual subscription will remain at £4 for 1974 despite the further increases in our costs.

It is now due and the Treasurer would be grateful if remittances could be sent, by those intending to renew their subscriptions, before 31st December 1973 (subscriptions paid before 15th January 1974 are £3.75). Prompt payment is the simplest way of keeping our costs down.

If there are still any subscribers who have not yet increased their Bankers Orders to £3.75 will they kindly do so before the 1974 payment is made.

The Treasurer most earnestly appeals to any who wish to withdraw their support to give notice as soon as possible and to return the January 1974 number if they receive it before giving notice of cancellation. The Treasurer points out that in accordance with the usual 'trade practice' subscriptions are deemed to be renewed unless cancelled.



# CONTENTS

Butterflies in Cyprus, June 1973. R. F. BRETHERTON .. .. .	1
A New Species of Dermaptera (Forficulidae) from Mexican Bromeliads. A. BRINDLE .. .. .	6
Refridgeration—A Valuable Adjunct to Usual Relaxing Methods used by Lepidopterists. D. M. KROON .. .. .	8
An Account of Some of the Lepidoptera of the Moorlands near Llyn Cwmynach, Merioneth. M. R. YOUNG .. .. .	10
Recent Butterfly Records from Greece. A. KOUTSAFTIKIS ..	15
The Butterflies of the Shimba Hills. D. G. SEVASTOPULO ..	18
Notes and Observations:	
<i>Acherontia atropos</i> L. in Essex in 1973. R. R. COOK ..	5
<i>Herse convolvuli</i> L. in Kent. J. C. LITTLE .. .. .	9
<i>Sterrrha sacrarria</i> L. and <i>Orithonama lignata</i> Hübn. in Gloucestershire. J. NEWTON .. .. .	17
<i>Lysandra coridon</i> (Poda) and <i>L. bellargus</i> (Rott.) in North Wales? R. L. H. DENNIS .. .. .	24
<i>Acherontia atropos</i> L. and Other Migrants in S. Devon. A. KENNARD .. .. .	24
<i>Hyles gallii</i> Rott., <i>Oria musculosa</i> Hubn. and <i>Rhyacia simulans</i> Hufnagel in Oxfordshire. P. D. J. HUGO ..	25
<i>Syngrapha interrogationis</i> (L.) in Norfolk. T. W. HARMAN ..	25
<i>Hyles gallii</i> Rott. in Britain during 1973: an Appeal. C. G. M. de WORMS .. .. .	25
<i>Nycterosia obstipata</i> Fab. at Woking. C. G. M. de WORMS ..	26
<i>Chloroclystis chloerata</i> Mab. at light in Surrey. C. G. M. de WORMS .. .. .	26
<i>Eupithecia phoeniceata</i> (Rambur) in Kent. I. A. WATKINSON .. .. .	26
<i>Eublemma ostrina</i> Hübn. in South Devon in 1973. A. KENNARD	27
<i>Blastobasis decolorella</i> Wollaston (Lep.: Blastobasidae). Attacking Stored Apples. S. N. A. JACOBS .. ..	27
<i>Monopis monachella</i> (Hübner.) (Lep.: Tineidae) in Suffolk. H. E. CHIPPERFIELD .. .. .	28
<i>Acherontia atropos</i> L. and <i>Hyles gallii</i> Rott. in Somerset and Dorset, 1973. B. J. TAYLOR .. .. .	28
<i>Eupithecia insigniata</i> Hübn. (Pinion-spotted Pug) in Berkshire. P. A. DAVEY .. .. .	28
<i>Eupithecia phoeniceata</i> Ramb. and <i>Lithopane leautieri</i> Boissduval in Sussex. R. P. PICKERING .. .. .	29
Obituary:	
John S. Taylor .. .. .	29
Current Literature .. .. .	30

# THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

*Edited by* J. M. CHALMERS-HUNT, F.R.E.S.

*with the assistance of*

A. A. ALLEN, B.SC., A.R.C.S.

C. A. COLLINGWOOD, B.SC., F.R.E.S.

NEVILLE BIRKETT, M.A., M.B.

H. C. HUGGINS, F.R.E.S.

S. N. A. JACOBS, F.R.E.S. (Registrar) S. WAKELY

Lieut. Col. A. M. EMMET, M.B.E., T.D., F.R.E.S.

H. B. D. KETTLEWELL, M.A. M.B., B.CHIR., F.R.C.S., L.R.C.P., F.R.E.S.



ANNUAL SUBSCRIPTION FOR THIS VOLUME No. 86

£4.00 Post free, for payment in sterling.

£4.25 if payment is made in Foreign Currency.

Is now due and should be paid to

*Hon. Treasurer:*

A. C. R. REDGRAVE, 2 Connaught Way, Tunbridge Wells, Kent

# *Studying Insects*

## **A Practical Guide**

**R. L. E. FORD**

**£2.50 net**

**0 7232 1705 X**

This is a revised edition of an earlier volume, *Practical Entomology*, and reflects the current emphasis on studying living insects rather than on collecting and killing them. Although primarily concerned with butterflies and moths, the book also covers groups such as ants, wasps and humblebees, and has sections on breeding insects and on conservation. With 16 pages of plates in colour and black and white.



## *South's British Butterflies*

**T. G. HOWARTH, B.E.M., F.R.E.S.**

**£10.50 net**

**0 7232 1499 9**

Richard South's classic work has now been brought completely up to date, with the text arranged in a more logical and readily accessible order. A valuable addition is the inclusion of illustrated aberrations of species. The 48 colour plates include illustrations of adults by A. D. A. Russwurm and of the early stages by R. B. Davis copied from the originals of F. W. Frohawk. With 320 pages, 57 distribution maps, colour identification key, index/glossary, cased binding, laminated colour jacket, slip case.

***FREDERICK WARNE & CO LTD***

**40 Bedford Square London WC1B 3HE**



# Lepidoptera of Aberdeenshire and Kincardineshire

By R. M. PALMER  
(2 Glenholme Gardens, Dyce, Aberdeen)

## General Introduction

It is my intention to issue this account in 3 parts. Part 1 includes the superfamilies Hesperioidea, Papilionidea, Bombycoidea, Sphingoidea, Notodontoidea and Noctuoidea; part 2 will deal with the Alucitoidea, Pyraloidea and Geometroidea; and part 3 will contain all the remaining superfamilies. The nomenclature throughout is that of Kloet and Hincks, *Check List*, 2nd Edition, revised, 1972.

Many of the records given here are based on observations made since 1968, and only with the less common species have I included records prior to that. Records for the two counties are separated paragraphically except for species which are common in both counties. Aberdeenshire records are preceded by the letter A, those for Kincardineshire by the letter K, and within this format records are generally arranged chronologically. So far as is known all records refer to feral imagines unless otherwise stated, and in the case of larvae I have whenever possible cited the natural foodplants upon which these have been found in the two counties. All records and statements are those of the compiler unless otherwise indicated.

In the preparation of this account I have received much assistance from Lepidopterists who have generously provided me with records. The initials of these contributors appear after their records throughout the main body of the work and their names in full in the list of acknowledgements.

## Part 1

Hesperioidea, Papilionidea, Bombycoidea, Sphingoidea,  
Notodontoidea and Noctuoidea

## Introduction

To my knowledge the total number of species in these superfamilies listed to date for the two counties is 247. 14 of these species — including 4 because they were not recognised as distinct — are unrecorded by any of the authors of the works in the list of references cited below.

I have purposely excluded from the main body of the account 41 species of the total of 247, the reason being that there are no recent records for these. However, I have briefly listed these 41 hereunder in two groups, and hope in due course to rediscover at least some of those in the first group.

(i) Those which were probably formerly resident here and may still persist:—*Pararge aegeria* L., *Eriogaster lanestris* L., *Leucoma salicis* L., *Setina irrorella* L., *Diaphora mendica* Clerck, *Agrotis clavis* Hufn., *Rhyacia simulans* Hufn., *Peri-*

*droma saucia* Hübn., *Sideridis albicolon* Hübn., *Melanchra persicariae* L., *Lacanobia contigua* D. & S., *Orthosia munda* D. & S., *Mythimna litoralis* Curt., *Lithophane ornitopus* Hufn., *Dryobotodes eremita* Fab., *Craniophora ligustri* D. & S., *Dypterygia scabriuscula* L., *Apamea anceps* D. & S., *Pyrrhia umbra* Hufn., *Nycteola revayana* Scop.

(ii) Species recorded on one or two occasions only, are unlikely to be resident, or are of known migratory habit: — *Colias croceus* Geoffroy, *Nymphalis antiopa* L., *Argynnis paphia* L., *Lasiommata megera* L., *Smerinthus ocellata* L., *Daphnis nerii* L., *Deilephila elpenor* L., *Hippotion celerio* L., *Philudoria potatoria* L., *Euproctis similis* Fuessly, *Atolmis rubricollis* L., *Lacanobia suasa* D. & S., *Blepharitia satura* D. & S., *Moma alpium* Osbeck, *Enargia ypsilon* D. & S., *Luperina zollikoferi* Freyer, *Athetis pallustris* Hübn.,<sup>1</sup> *Protoschinia scutosa* D. & S., *Catocala fraxini* L., *Euclidia glyphica* L., *Tyta luctuosa* D. & S.<sup>2</sup>

I have thought it unnecessary to cite the literature for all of the widespread and common species and have referred to this only if the information therein differs greatly from the present status of those species.

A field record without date signifies the occurrence of a species at that locality with some regularity during the period 1968-73 inclusive, except in the case of the Rothamsted trap at Banchory where all the records are for 1973.

**Abbreviations:**—Banchory R. T. refers to the Rothamsted trap operated by the Natural Environment Research Council, Hill of Brathens, Banchory. This trap has been in operation since 2.iv.1973 and I have identified all the macrolepidoptera so far taken there. N.N.R.=National Nature Reserve

**Acknowledgements:**—I should like to thank the organisers of the Rothamsted Insect Survey, Rothamsted Experimental Station, Harpenden, Herts., for permission to use the information from their Banchory trap, also Dr B. Mitchell and Dr N. Bayfield of N.E.R.C., and Mr J. Forster of the Nature Conservancy for their help and co-operation in running the trap.

I am greatly indebted to the following for providing me with records and information: — Mr D. Barbour, Dr N. Bayfield, Mr G. Downie, Mr A. Duncan, Mr J. Forster, Mr N. Gill, Mr D. Gurney, Mr J. C. Lavin, Mr W. McWilliam, Dr D. G. Morison, Mr E. C. Pelham-Clinton, Mr E. Pickard, Dr M. Shaw and Mr D. Spreadbury. I also thank Mr J. M. Chalmers-Hunt for his interest, help and advice during the preparation of this account.

#### REFERENCES

- Barr, W. B. (1901-6). *Trans. Aberd. wkg. Mens. nat. Hist. Soc.*, **1**: 132  
 Cowie, W. (1901-6). *Trans. Aberd. wkg. Mens. nat. Hist. Soc.*, **1**: 20-35.  
 Cruttwell, C. T. (1907). *Ent. mon. Mag.*, **43**: 256-7.

<sup>1</sup>A specimen in the Duncan collection Aberdeen University.

<sup>2</sup>A specimen in Keighley Museum, Yorks, labelled viii/1908, Aberdeen (J. C. L.).

- DalGLISH, A. A. (1894). *Entomologist*, **27**: 353-5.  
 ESSON, L. G. (1890). *Entomologist*, **23**: 168-170.  
 GUNNING, M. (1896). *Ent. Rec.*, **7**: 92-4.  
 HORNE, A. (1897). *Ent. Rec.*, **9**: 18-19.  
 HORNE, A. (1904). *Ent. Rec.*, **16**: 332-4.  
 RUSSELL, JAMES E. (1912). *Ent. Rec.*, **24**: 253-9.  
 KLOET, G. S., & HINCKS, W. D. (1972). *A Check List of British Insects*, Part 2 (Lepidoptera), 2nd Edition, Revised by D. S. Fletcher, J. D. Bradley and P. E. S. Whalley.  
 MORISON, G. D. (1965). *Proc. S. Lond. ent. nat. Hist. Soc.*, **1965**: 77.  
 MORISON, G. D. (1966). *Proc. S. Lond. ent. nat. Hist. Soc.*, **1966**: 14.  
 PALMER, R. M. (1972). *Ent. Rec.* **84**: 269-71.  
 REID, W. (1893). *List of the Lepidoptera of Aberdeenshire and Kincardineshire*.  
 SHAW, M. W. (1951). *Entomologist*, **84**: 279.  
 SHAW, M. W. & ALLAN, R. M. (1957). *Plant Path.*, **6**: 114.  
 SHAW, M. W. & ALLAN, R. M. (1962). *Plant Path.*, **11**: 46.  
 SOUTH, R. (1961). *Moths of the British Isles*, Series 1.  
 TRAIL, J. W. H., 1878, *Trans. nat. Hist. Soc. Aberdeen*, **1878**: 28-42.  
 TUTT, J. W. (1899-1914). *Natural History of the British Lepidoptera*.

## HESPERIOIDEA

### Hesperiidae

#### **Erynnis tages** L.

A. Near Monymusk, regularly observed for many years, last seen c. 1970 (W.McW.).

## PAPILIONOIDEA

### Pieridae

#### **Pieris brassicae** L.

A. & K. Common. Larvae on garden *Brassica*.

#### **P. rapae** L.

A. & K. Common. Larvae on garden *Brassica* and *Nasturtium*.

#### **P. napi** L.

A. & K. Common. Breeds in marshy areas, larvae on *Cardamine pratensis*, ova on the flowers.

#### **Anthocharis cardamines** L.

Local, occurring in marshy areas and common in some.

A. Fintray; Inverurie; Fyvie; New Deer (Trail, 1878). Kintore; Burnharvie; Dess (Reid, 1893). Monymusk; Cluny (Cowie, 1902). Birse; Tarland; Whitehouse; Kincardine O'Neill (Morison, 1965). Potarch, 1970 (G.M.). Near Huntly, common (E.P.). Kintore, common; Tyrebagger Forest, common, 1972 (R.M.P.). Kemnay (W.McW.). Turiff, 1972 (D.G.).

K. Banchory and Strachan (Morison, 1965). Bridge of Bogendreep, common, 1972 (R.M.P.).

## Lycaenidae

**Callophrys rubi** L.

A. Scarce, Fyvie and near Tarland (Trail, 1978). Cluny (Cowie, 1902). Kemnay; Craigenlow (W.McW.). Braemar, one 1960 (E.C.P.-C.). Linn of Dee 1973, common (R.M.P.).

K. Banchory (Reid, 1893). Coast districts (Esson, in Tutt, 1899-1914).

**Lycaena phlaeas** L.

A. & K. Widely distributed and quite common.

**Cupido minimus** Fuessly

Local but common (Trail, 1878). Common on the coast, not rare inland (Reid, 1893).

A. Aberarder (James, 1912). Tillyfourie near Alford (W.McW.).

K. Common on the coast south of Aberdeen (Cowie, 1902). Near Cove, a small colony (E.P., R.M.P.).

**Aricia artaxerxes artaxerxes** Fab.

A. In the Dee valley to 2000 ft; Inverurie, Fyvie (Trail, 1878). Kintore (Barr, 1905) Braemar; Aberarder (James, 1912). Dinnet Muir, one, 1970 (E.P.). Dinnet Oak Wood N.N.R., one, 1970 (E.C.P.-C.). Kemnay (W.McW.).

K. Abundant on the coast south from Aberdeen (Trail, 1878). Locally abundant. Muchalls has long been noted as a good locality (Reid, 1893). St Cyrus; Bervie (Gunning, 1896). Muchalls, common (E.P., R.M.P.).

**Polyommatus icarus** Rott.

A. & K. Common. Ova on *Lotus corniculatus* (E.C.P.-C.).

## Nymphalidae

**Vanessa atalanta** L.

A. & K. Common some years, particularly along the coast.

**Cynthia cardui** L.

A. & K. Generally less common than *V. atalanta*, most common along the coast.

**Aglais urticae** L.

A. & K. Common. Univoltine. Larvae on *Urtica dioica*.

**Nymphalis polychloros** L.

A. Near Inverurie, two (Trail, 1878). About two miles south-west of Kintore, bred regularly until 1959, larvae on elm. Repeated searches have failed to locate the species since (W.McW.).

**Inachis io** L.

A. Singly near Aberdeen, Monymusk and Fyvie (Trail,



1878). Kemnay, occasional (W.McW.). Aberdeen links, one, 1968 (A.D.).

***Boloria selene* D. & S.**

Locally common in marshy areas.

A. Aberarder (James, 1912). Dinnet (E.P., E.C.P.-C.). Kintore (R.M.P.). Kemnay (W.McW.). Forest of Birse (R.M.P.). Glentinar, 1972 (E.P.).

K. Blackhall (Horne, 1904). Muchalls (E.P.).

***B. euphrosyne* L.**

Locally common.

A. Braemar (Cowie, 1902). Aberarder (James, 1912). Dinnet; Forvie N.N.R. (E.P., R.M.P.). Braemar 1964; Crathie, 1969 (E.C.P.-C.). Kemnay (W.McW.). Balmoral, 1970; Fintray, 1972 (R.M.P.).

***Argynnis aglaja* L.**

Common on the coast, locally abundant inland (Reid, 1893).

A. Kintore; Monymusk (Cowie, 1902). Braemar; Aberarder (James, 1912). Forvie N.N.R., abundant (R.M.P., E.P., D.S.). Kemnay (W.McW.). Glentinar (R.M.P.). Common in glens around Braemar to 2000 ft. (R.M.P., D.B., E.C.P.-C.).

K. Portlethen; Muchalls (Cowie, 1902). Bervie (Gunning, 1896). Blackhall (Horne, 1904).

***Euphydryas aurinia* Rott.**

A. Local and scarce, Monymusk and Fyvie (Trail, 1878). Pitscurrie Moss; Loch Shangie, Kemnay (Reid, 1893). Pitscurrie Moss (W.McW.).

Satyridae

***Erebia epiphron* Knoch**

Scarce (Esson, 1890).

A. Bennachie, 1961, 1962 (W.McW.).

***E. aethiops* Esp.**

A. Braemar, common; Nigg, one (Trail, 1878). Near Monymusk, formerly (W.McW.). Monymusk, 1957 (common; Potarch, 1972, one (G.M.). Near Huntly, a small colony (E.P.).

***Hipparchia semele* L.**

A. Murcar Links, one (Trail, 1878). Peterhead (Reid, 1893). Forvie N.N.R., common (E.P., A.D., R.M.P.).

K. Common on the coast south of Aberdeen (Trail, 1878). Muchalls (Cowie, 1902). St Cyrus N.N.R., 1961 (E.C.P.-C.). Cove, 1968, one (E.P.).

***Maniola jurtina* L.**

A. & K. Abundant.

***Coenonympha pamphilus* L.**

A. & K. Abundant.

**C. tullia** Mull.

Abundant, all moors (Reid, 1893).

A. Pitsligo; Braemar (Cowie, 1902). Bennachie (W.McW.).

Glentanar (E.P.). Glens around Braemar (R.M.P., D.B.).

K. Hill of Fare (Cowie, 1902).

**Aphantopus hyperantus** L.

A. Fyvie; Cruden; Morven; Inverurie (Trail, 1878). Tillyfourie (Reid, 1893). Monymusk (Cowie, 1902), still there, 1958, but colony threatened by afforestation and now (1973) destroyed (W.McW.). [Between Kintore and Kemnay, specimens taken from the threatened Monymusk colony in 1958 and introduced here by W. McWilliam, where the species is now (1973) flourishing].

**BOMBYCOIDEA****Lasiocampidae****Poecilocampa populi** L.

A. Scarce, Inverurie and Fyvie (Trail, 1878). Pitcaple (Reid, 1893). Not common. Culter; Cluny; Monymusk (Cowie, 1902). Common, Dyce; Bucksburn; Kintore (R.M.P.).

K. Durris Forest (E.P.). Banchory R.T.

**Trichiura crataegi** L.

A. Morrone Hill (Trail, 1878). Hazelhead, occasional; Cluny (Cowie, 1902). Dyce and Corby Loch, common, 1968 (R.M.P.). Braemar, 1960, 1970 (E.C.P.-C.), one larva on *Calluna*, 1971 (R.M.P.). Ballater, 1971; Cambus o'May, 1973; Dinnet, 1973 (E.C.P.-C.).

K. Hill of Fare, occasional (Cowie, 1902). Blackhall (Horne, 1904). Banchory R.T.

**Lasiocampa quercus callunae** Palmer

A. & K. Common on moors. Larvae on heather, sometimes abundant in spring.

**Macrothylacia rubi** L.

A. & K. On moors, usually less common than *L. callunae*. Larvae on heather.

**Saturniidae****Saturnia pavonia** L.

A. & K. Widespread and not uncommon, mostly on moors. Larvae on heather. Cocoons frequently seen among heather in early spring.

**Endromidae****Endromis versicolora** L.

Scarce.

A. Tarland (Trail, 1878). Balmoral (Cowie, 1902). Logie-Coldstone; Birse (Morison, 1966). Dinnet, larvae on birch, 1969 (R.M.P.). , 1972 (D.B.).

K. Near Banchory, very scarce (Reid, 1891). Blackhall Wood (Horne, in Tutt, 1899-1914). Banchory R.T., ♂, v.1973.

## SPHINGOIDEA

### Sphingidae

#### ***Agrius convolvuli* L.**

Uncertain (Trail, 1878).

A. Pitcaple; Strichen; Aberdeen; Rubuslaw; Fyvie (Reid, Salter, Mundie, Buchan & Macintosh, in Tutt, 1899-1914). Kemnay, one, c. 1935 (W.McW.), Cults, one, 1937 (G.M.). Bucksburn, one, 1967 (M.S.).

#### ***Acherontia atropos* L.**

Every year, scarce (Trail, 1878).

A. Culter, 1938, one; Aberdeen, 1943, one (G.M.), 1951 (Shaw, 1951), 1967, one (R.M.P.), 1969, one (M.S.). Udney, 1966, one (M.S.).

#### ***Laothoe populi* L.**

A. & K. Common, larvae on willow (R.M.P.), and aspen (E.C.P.-C.).

#### ***Hemaris tityus* L.**

A. Old Aberdeen Links; Inverurie; Scotston Moor; Monymusk (Trail, 1878). Kintore; Cluny; near Lumphanan (Cowie, 1902). Dinnet, 1938, two (G.M.). Between Kemnay and Inverurie (W.McW.).

K. Near Banchory, one, 1942 (G.M.).

#### ***H. fuciformis* L.**

A. W. McWilliam has several specimens collected over many years in the Kemnay area. He tells me the species was first observed in 1929 by the late Mr G. Hartley, flying with *H. tityus* in a wood between Kemnay and Inverurie. W.McW. last saw one between Kemnay and Inverurie c. 1969.

#### ***Macroglossum stellatarum* L.**

Scarce (Trail, 1878). A. Aberdeen, one 1947 (G.M.) Forvie N.N.R., one, 1969 (E.P.).

#### ***Hyles gallii* Rott.**

A. Aberdeen (Trail, 1878). 1888 (A. Horne, in Tutt, 1899-1914). Bucksburn, one, 1946 (G.M.).

K. St Cyrus N.N.R., one, 1973 (J.F.).

#### ***Deilephila porcellus* L.**

A. Scarce on the coast and at Inverurie (Trail, 1878). Old Aberdeen Links, frequent (Cowie, 1902). Kemnay, c. 1950 (W.McW.).

K. Scarce on the coast (Trail, 1878). St Cyrus (Gunning, 1896). Muchalls, frequent (Cowie, 1902). Banchory, one larva, 1951, on *Galium verum*; Newtonhill, one larva, 1957 on *G. verum* (G.M.).

## NOTODONTOIDEA

## Notodontidae

**Phalera bucephala** L.

Larvae very common in places (Trail, 1878). Often abundant (Reid, 1891).

A. Near Cults, larvae abundant on willow, 1954 (E.P.). Kemnay, larvae sometimes common, viz 1972 on plum (W.McW.).

**Cerura vinula** L.

Not uncommon (Trail, 1878). Common everywhere (Reid, 1893).

A. Not uncommon. Hazelhead; Murtle Den; Culter (Cowie, 1902). Not uncommon as larvae on willow and willow at Dyce and Forvie N.N.R. (R.M.P.). Aberdeen (E.P.). Ordie, larvae on *Salix atrocinerea*; Ballater, larvae on *S. caprea*; Braemar, *S. repens* (E.C.P.-C.). Cruden Bay, one, 1968 (M.S.).

**Harpia furcula** Clerck

Scarce (Trail, 1878). Widely distributed, larvae not uncommon (Reid, 1893).

A. Aberdeen neighbourhood, larvae not uncommon (Cowie, 1902). Corby Loch and Checkbar Moss, larvae on willows growing in mosses (E.P.).

**Notodonta dromedarius** L.

Rare (Trail, 1878). Not scarce (Reid, 1893).

A. & K. Larvae common on birch (R.M.P.).

**Eligmodonta ziczac** L.

Not uncommon, especially as larvae (Trail, 1878).

A. & K. Common. Larvae on willow (R.M.P., E.P.).

**Pheosia gnoma** Fab.

Rare (Trail, 1878).

A. Pitcaple, not rare, scarce elsewhere (Reid, 1893). Very scarce. Kintore; Hazelhead; Cluny; Monymusk (Cowie, 1902).

A. & K. Widespread and common from Braemar to the coast. Larvae on willow (R.M.P.).

**P. tremula** Clerck

Rather common (Trail, 1878). Larvae common (Reid, 1893). Sometimes very common (Esson, 1890).

A. Hazelhead, not uncommon (Cowie, 1902). Apparently confined to the highlands westward from Dinnet, and much less common than *P. gnoma* (R.M.P.). Dinnet, 1971 (R.M.P., E.P.). Ballater, 1971, 1973 (E.C.P.-C.). Braemar, 1970 (E.C.P.-C.), 1973 (N.G.).

**Ptilodon capucina** L.

A. & K. Quite common. Larvae on birch.



**Odontosia carmelita** Esp.

A. Balmoral, one (Cowie, 1902). Monymusk (Palmer, 1972).

K. Durris Forest, one, 1970 (E.P.). Banchory R.T., one, 1973.

**Pterostoma palpina** Clerck

A. Near Kintore, several, c. 1955 (W.McW.).

## NOCTUOIDEA

## Lymantriidae

**Orgyia antiqua** L.

A. & K. Abundant (Trail, 1878). Common. Larvae on willow (Esson, 1890). Not uncommon. Larvae on birch (R.M.P.). Larvae on *Malus* and *Alnus* (E.C.P.-C.).

**Dasychira fascelina** L.

On all moors, rather scarce (Trail, 1878).

A. Not uncommon at light, 1968: Tyrebagger Hill; Brimmond Hill; Corby Loch (R.M.P.).

[Cambus o'May; Dinnet, 1973 (E.C.P.-C.).]

Larvae more frequently observed, on *Calluna*: Forvie N.N.R. (E.P.); Glen Muick, 1972 (R.M.P.).

## Arctiidae

**Nudaria mundana** L.

A. Dyce (R.M.P.). Dinnet, 1970; Cambus o'May, 1973; Ordie, 1973 (E.C.P.-C.). Dunecht, larvae abundant on dry stone walls every spring (E.P.).

K. Common on the coast (Esson, 1890). Muchalls (Reid, 1893). Durris Forest (E.P.). Banchory R.T.

**Eilema lurideola** Zinck.

K. Occasional. Cove; Muchalls; Thornyhive (Trail, 1878). Fairly common. Portlethen; Muchalls (Cowie, 1902). Cove, frequent (E.P.). Muchalls, abundant; Dunnotar Castle, larvae on rocks (R.M.P.). St Cyrus N.N.R., 1961 (E.C.P.-C.).

**Parasemia plantaginis** L.

Common on moors to 2000 ft. (Trail, 1878). Scarce on moors (Reid, 1893).

A. Scotston Moor (Cowie, 1902). Kintore (Barr, 1905). Dinnet, 1969 (R.M.P.). Braemar (E.C.P.-C., R.M.P.). Forvie N.N.R., larvae common (E.P.).

K. Muchalls (Cowie, 1902). Hill of Fare, 1938 (G.M.). Muchalls, larvae common (E.P.).

**Arctia caja** L.

A. & K. Common. Larvae on birch in autumn, on many low plants in spring; two larvae on rhubarb, 1973 (R.M.P.).

**Diacrisia sannio** L.

A. Scarce. Inverurie; Monymusk; Park (Trail, 1878). Murtle Den; Invercannie (Cowie, 1902). Braemar (Cruttwell,

1907). Forest of Birse, 1971 (R.M.P.).

K. Banchory (Trail, 1878). Bervie (Gunning, 1896). Durris Forest, one, 1970 (E.P.).

***Spilosoma lubricipeda* L.**

A. & K. Abundant. Larvae on various grasses, ribwort plantain, dock.

***Phragmatobia fuliginosa* L.**

A. & K. Common. Larvae on heather.

***Tyria jacobaeae* L.**

A. Nigg, scarce (Cowie, 1902). Balmedie, c. 1960 (W.McW.).

K. St Cyrus (Gunning, 1896). Scarce. Cove; Muchalls (Cowie, 1902). Muchalls, c. 1960 (W.McW.). St Cyrus N.N.R., larvae on ragwort, 1971 (D.S.).

**Noctuidae**

***Euxoa obelisca* D. & S.**

A. Old Aberdeen, one (Trail, 1878).

K. St Cyrus N.N.R., one, 1961 (E.C.P.-C.).

***E. tritici* L.**

Abundant (Trail, 1878).

A. & K. Common on coasts, particularly on sandhills, but generally distributed and not uncommon inland.

***E. nigricans* L.**

Local but common (Trail, 1878).

A. Murcar Links, common (Cowie, 1902). Bridge of Don, 1971, rather scarce (D.B.). Dyce, 1972, 1973 (R.M.P.). Ballater, 1971 (E.C.P.-C.).

K. Muchalls, 1971 (R.M.P.).

***E. cursoria* Hufn.**

A. Old Aberdeen, rare (Trail, 1878). Murcar Links (Cowie, 1902). Common on sandhills. Balmedie; Newburgh; Forvie N.N.R. (R.M.P.).

***Agrotis vestigialis* Hufn.**

A. Abundant on sandhills (Trail, 1878). Murcar Links, common (Cowie, 1902). Common in the same areas as *E. cursoria*; also at Bridge of Don (D.B.). Dyce, one, 1972 (R.M.P.).

K. St Cyrus N.N.R., 1961 (E.C.P.-C.).

***A. segetum* D. & S.**

A. & K. Sometimes common.

***A. exclamationis* L.**

A. & K. Generally common, abundant in places near the coast.

***A. ipsilon* Hufn.**

Common but uncertain in appearance (Reid, 1893).

A. Dyce, 1968, common (R.M.P.). Aberdeen, 1968, common (E.P.). Since 1968, only one, Dyce (1972), and a larva by E.C.P.-C. at Ordie, 1970.

**Axylia putris** L.

A. Rare. Peterhead (Trail, 1878). Inverurie (Cowie, 1902). Braemar, 1973 (N.G.).

**Ochropleura praecox** L.

A. Occasional. Old Aberdeen; Inverurie (Trail, 1878). Cruden (Reid, 1893).

K. St Cyrus N.N.R., 1961 (E.C.P.-C.).

**O. plecta** L.

A. & K. Common.

**Eugnorisma depuncta** L.

This species does not appear in any of the literature cited except for the statement in South (1961) that it seems "to be more frequently and regularly obtained in Scotland, especially in the woods of . . . Aberdeen". Apart from a specimen in Keighley Museum, Yorks., labelled Aberdeen, 1880 (J.C.L.), the only records are of very recent origin.

A. Ballater, five, 1971; Dinnet, one, 1971 (E.C.P.-C.).

K. Banchory R.T., one, 1973.

**Standfussia lucerneana** L.

K. Muchalls, not uncommon (Trail, 1878). Most abundant on the Kincardine coast (Reid, 1893). Cove, common (E.P.). Muchalls, abundant (R.M.P.).

**Noctua pronuba** L.

A. & K. Abundant. Ova on seedheads of grasses, larvae on various grass spp.

**N. orbona** Hufn.

Local and scarce (Trail, 1878).

A. Ordie, one, 1971 (E.C.P.-C.).

**N. comes** Hübn.

A. & K. Common.

**N. fimbriata** Schreber

Local and scarce (Trail, 1878).

A. Pitcaple, rare (Reid, 1893). Murtle Den (Cowie, 1902). Newmachar, one, 1968; Dyce, one, 1973 (R.M.P.). Kemnay, rare (W.McW.).

K. St Cyrus N.N.R., two, 1961 (E.C.P.-C.).

**N. janthina** D. & S.

Local and scarce (Trail, 1878).

A. & K. Common (R.M.P.).

**Graphiphora augur** Fab.

Common (Trail, 1878). Abundant (Reid, 1893).

A. Plentiful. Cults; Blacktop; Murtle Den (Cowie, 1902). Scarce. Dyce; Oldmeldrum (R.M.P.). Crathie, 1953; Braemar, 1970; Ballater, 1971, 1973; Ordie, 1973; Cambus o'May, 1973 (E.C.P.-C.).

K. Common (Dalglish, 1894). Durris Forest, scarce (E.P.).

**Paradiarsia sobrina** Dup.

A. Locally common. Countesswells; Blacktop; Murtle Den; Dorncleugh (Cowie, 1902). Braemar, one, 1960; Ballater, 1971; Ordie, one, 1973 (E.C.P.-C.). Bennachie, one, 1973 (R.M.P.).

K. Scarce on coast (Horne, 1897). Blackhall (Horne, 1904).

**P. glareosa** Esp.

A. & K. Common.

**Lycophotia porphyrea** D. & S.

A. & K. Abundant on moors. Larvae on *Calluna*.

**Diarsia mendica** Fab.

A. & K. Abundant.

**D. dahlia** Hübn.

A. & K. Rather local but abundant in many places.

**D. brunnea** D. & S.

A. & K. Quite common.

**D. rubi** View.

A. & K. Common.

**Xestia alpicola** Zett.

A. Braemar, one (Trail, 1878). Near Braemar, a few (Reid, 1893). Braemar district above 2250 ft., three, 1962 (E.C.P.-C.).

**X. c-nigrum** L.

A. & K. Very common.

**X. triangulum** Hufn.

A. Dyce, scarce (R.M.P.). Turriff, 1972 (D.G.). Dinnet, 1970; Ballater, 1971, 1973; Ordie, 1973; Cambus o'May, 1973 (E.C.P.-C.).

K. Only at Muchalls (Reid, 1893). Den of Cowie (Cowie, 1902). Durris Forest (E.P.). Banchory R.T.

**X. baja** D. & S.

A. & K. Very common.

(to be continued)



## Butterflies in Tuscany, May—June 1973

By Dr C. G. M. de WORMS

The Peninsula of Italy is always an attraction for anyone interested in its lepidoptera and as I pointed out in an earlier paper (*Ent. Rec.*, 1970: **82**: 249-252) on a visit to this region, it seems unfortunate that not more entomologists delve into the large areas, especially in the Apennine range, which still seem to have been somewhat neglected.

I had a further opportunity of collecting in this fine country when Mr Hugh Johnson who used to live in England sent me a most cordial invitation to stay with him on the estate of his wife's family situated some 15 miles west of the ancient city of Perugia. Accordingly I flew to Rome on 25th May where I picked up a Renault and drove from there direct via the Autostrada just over a 100 miles to Passignano and thence to the nearby fine and ancient house on the estate of le Masse which overlooks Lake Trasimene. It was altogether a most delightful resort where I was warmly greeted by my host who said there had just been a very bad break in the weather. However, it did indeed relent the next day, the 26th, when I went in quest of the local lepidoptera. I could soon assess that the area with its wooded slopes above the garden was rich in many species. The most noticeable and plentiful butterfly seemed to be the Lycaenid *Glaucopsyche alexis* Poda which was in abundance in the immediate vicinity of the house. Both sexes were flying in long herbage together with a good many *Melitaea didyma* Esp., while the lower slopes harboured by an orchard a small colony of *Melitaea cinxia* L., just freshly emerged. *Pieris rapae* L. and *P. napi* L. were much in evidence together with *Anthocharis cardamines* L. *Papilio machaon* L. was careering about at great speed in the garden. The next day which was very warm, I ventured uphill along a path through a thickly wooded area where *Leptidia sinapis* L. and *Clossiana euphrosyne* L. were disporting themselves. *Maniola jurtina* L. was just appearing. That afternoon my host drove me to some ground above the estate where I took the Burnet *Zygaena oxytropis* Bdv., a species confined to Italy. In the evening there was quite a concourse of moths at his front door light which included *Arctia villica* L. and *Eilema caniola* Hübn. as well as the diminutive Cossid *Dyspressa ulula* Borkh. and the outsize Galleriid Pyrale *Larioria anella* Schiff. May 28 was yet another very warm day which produced further *M. cinxia* and a single *Heodes alciphron gordius* Sulzer. May 29 was the only completely wet one during the whole of my sojourn and in fact I did not see any more considerable rain before I left Italy well into June.

Unfortunately I had to curtail my visit to this lovely part of Tuscany as my host had to move to Perugia where his wife was unwell. I had had the opportunity of sampling its lepidoptera and recorded 19 species of butterflies on the Le Masse

estate in the five days.

A small butterfly in which I was particularly interested was the little Satyrid *Coenonympha corinna* Hübn., chiefly an inhabitant of Corsica and Sardinia but which produces a very specialised form *elbana* Staudinger on the island of Elba and on a limited area on the western coast of Italy opposite Elba, which I made tentative plans to visit. But I found most of the island had been booked up for conferences just at that period so that my alternative choice was the small town of Orbetello on the mainland opposite the mountainous Peninsula of Monte Argentario. I was fortunate in being able to book up here in spite of an impending national holiday, as this area was also a well-known one for *elbana*.

I left le Masse early on May 30 and motored via Siena through some grand country to Grosseto. That evening I reached my destination 100 miles away which was on the coast at the neck of the Peninsula. Grand weather prevailed the last day of May when I ventured across the causeway from Orbetello to the foot of the very rugged Monte Argentario rising to over 2000 ft.

I soon spotted a rough track into the foothills which was being used by lorries leading to the local rubbish dump. At once I could see the area was full of butterflies. Immediately I pulled up I spotted a small satyrid which I netted and it proved to be *elbana* which is much more heavily spotted on both the under- and upperside than its Corsican relative from which it differs so much that it may well claim specific rank. In 1969, Lt. Col. W. Manley found this insect slightly further up the coast northwards on another small peninsula of Talamone (*Entomologist's Rec. J. Var.*, **81**: 120). Other species seen on this first day included *Gonepteryx cleopatra* L., *Limenitis reducta* Staud., *Euchloë ausonia* Hübn and also the handsome day flying arctiid moth *Coscinia striata* L. That afternoon produced a few more *elbana* which seemed scarce at this moment. However, June which opened very warm produced some more of the little insect in this spot which proved very fruitful. It was on the edge of a *maquis*-type of vegetation which covered most of the seven mile long eastern face of mountainside with dense scrub. It was full of bushes of *Arbutus unedo* so that I had high hopes of the appearance of *Charaxes jasius* L. in due course and I was not to be disappointed. *Papilio machaon* L. was quite numerous but hard to get in prime condition. I took a single male *Pyronia cecilia* Vall., the only one I saw. On the road to Porto San Stefano I discovered a well-made route which wound up to a big monastery and then continued several miles to the summit of Monte Argentario where there was a big radar station and a grand view of the surrounding country. The whole road which cut through the thick *maquis* had plenty of flowers along the edges which harboured on subsequent days a lot of butterflies and was to be my chief hunting ground. A further visit to these localities

on June 3 saw the appearance of the first *Mellicta athalia* Rott., and a very bright form of *Plebicula escheri* Hübn. approaching f. *splendens* Stefanelli. On the 4th owing to reconstruction work at my hotel at Orbetello I moved to the very good Hotel Don Pedro, some five miles away at the small town of Porto Ercole on the south side of the Peninsula. It was really a most delightful location, overlooking the little harbour full of boats rather like one on the Cornish coast. A new road led for some three miles towards the west of the Mountain but it was not possible to make the complete circuit owing to a very rough stretch in this region which was also very wild and full of flowers but not nearly as rich in lepidoptera as the slopes already mentioned. Except for one night thunderstorm it had continued very warm conditions for the following week during which I concentrated on the fauna of the Peninsula, and enjoyed a very refreshing daily bathe on the excellent sandy beach at La Feniglia quite close to Porto Ercole.

June 6 after the storm saw a burst of butterflies with large numbers of *C. cleopatra* and the first of that prevalent Hairstreak *Nordmannia ilicis* Esp. mainly up the Monastery road where *C. elbana* was hugging the roadside in many places. On the 7th on this road, as I pulled up, I saw a large butterfly sail over the car and had no difficulty in identifying it as Europe's largest butterfly *Charaxes jasius* L. The next two days in this area saw a further emergence of most of the spring butterflies already referred to. On the 10th I was relaxing eating by my car when a *jasius* glided along only two feet from the ground about 10.30 a.m. just out of reach, a fine sight the mélange of black and red of the upperside. Later that day I saw at least three others with one settling on a tall bush up the Monastery road, but it flew off as I was stalking it. By this time both *elbana*, the Hairstreak and Brimstone had become almost abundant at intervals along this rich winding route of some four miles. I spent my last collecting day June 11, scrutinising every stretch of it in the hope of seeing more *jasius* but in vain and none patronised some banana bait I put down in a ride. However, I happened to come across a large bramble patch smothered mainly with *N. ilicis* (at least fifty) and a goodly assortment of other species with some eight *Limenitis reducta* and a good many *M. athalia*, *C. elbana* (first females), and a lot of late *Celastrina argiolus* L. *Maniola jurtina* L. was also enjoying the feast at these blossoms.

On the 12th of June I motored in brilliant sunshine to Rome Airport where I embarked by air in the early afternoon and was back in England the same evening after a most enjoyable and on the whole successful stay in this delightful part of Italy, though of course it was a chagrin that my catch did not include any *Charaxes*.

I have enumerated below the species of butterflies noted (38 in all). In the list (P) stands for Passignano district, while (MA) indicates Monte Argentario.



- Papilio machaon* L. Few (P) and more numerous (MA).  
*Iphiclides podalirius* L. Only two seen (MA).  
*Pieris brassicae* L. Few appearing end of visit (MA).  
*Pieris rapae* L. Numerous both (P) and (MA).  
*Pieris mannii* Mayer. A few (MA).  
*Pieris napi* L. Plentiful in a summer form (P) and (MA).  
*Pontia daplidice* L. Only one seen and taken (MA).  
*Euchloë ausonia* Hübn. Several in a summer form (MA).  
*Anthocharis cardamines* L. Fairly numerous (P).  
*Colias crocea* Fourc. Only seen at (P).  
*Gonepteryx cleopatra* L. Very numerous after June 6 (MA).  
*Leptidea sinapis* L. A few noted in woods (P).  
*Charaxes jasius* L. Some eight sightings from June 7.  
*Limenitis reducta* Staud. Fairly numerous everywhere (MA).  
*Clossiana euphrosyne* L. A few in woods (P).  
*Melitaea cinxia* L. A few seen (P).  
*Melitaea phoebe* Schiff. Only one noted (MA).  
*Melitaea didyma* Esp. A few (P) and more numerous (MA).  
*Mellicta athalia* Rott. Fairly plentiful (MA).  
*Melanargia galatea* L. A few observed from June 2 (MA).  
*Maniola jurtina* L. Numerous (P) and (MA).  
*Pyronia cecilia* Vall. Only one seen (MA).  
*Coenonympha pamphilus* L. Fairly plentiful at (P) and (MA).  
*Coenonympha corinna elbana* Staud. First seen on May 31  
 and quite numerous by June 11 when females first seen  
 (MA).  
*Pararge aegeria* L. A few noted (P).  
*Lasiommata megera* L. A number seen (P) also (MA).  
*Nordmannia ilicis* Esp. Plentiful from June 6 (MA).  
*Callophrys rubi* L. A few late specimens (P).  
*Heodes alciphron* Rott. One taken (P).  
*Celastrina argiolus* L. A number noted in most areas on (MA).  
*Glaucopsyche alexis* Poda. Plentiful (P), less numerous (MA).  
*Plebicula escheri* Hübn. A few noted on June 3 (MA).  
*Polyommatus icarus* Rott. Several seen (P) and (MA).  
*Pyrgus malvoides* Edwards. A few seen (P).  
*Thymelicus acteon* Rott. Numerous everywhere (MA).  
*Thymelicus sylvestris* Poda. A few seen (MA).  
*Thymelicus lineola* Ochs. Scarce on (MA).  
*Ochlodes venatus* Esp. A few observed (MA).

The following moths were identified at light and in the vicinity of le Masse, Passignano.

ARCTIIDAE:—*Arctia villica* L., *Hippocrita jacobaeae* L., *Diacrisia sannio* L., *Eilema caniola* Hübn.

NOCTUIDAE:—*Hadena lepida* Esp., *Unca tripartita* Hufn.

GEOMETRIDAE:—*Sterrhia vulpinaria* H.-S., *Sterrhia subsericeata* Haworth, *Rhodostropia calabra* Pet., *Anaitis plagiata* L., *Cleora rhomboidaria* Schiff., *Rhoptria asperaria* Hübn., *Ematurga atomaria orientaria* Sulz.

COSSIDAE:—*Dussoressa ulula* Borkh. GALLERIINAE:—*Lamoria anella* Schiff. ZYGAENIDAE:—*Zygaena oxytropis* Bdv.



# In Search of *Erebia scipio* Bdv.: Southern France, July 1973

By Dr C. G. M. de WORMS

*Erebia scipio* Boisduval has indeed been one of the most elusive and difficult insects to obtain among the 46 species now recognised among its genus in Europe, and indeed few British collectors seem to have seen it alive in any numbers during the first half of this century and not many in the last two decades. It inhabits high scree at not less than 5000 ft and has a most restricted range in southern France from Mont Ventoux in the west to the Italian border of the Alpes Maritimes in the east and extending to the Hautes Alpes northwards. In his Presidential address in January 1952 to the South London Entomological and Natural History Society, Mr T. G. Howarth made brief reference to his exploits on the Mont de Lure in Provence where he obtained a fine series of this butterfly in late July 1950. Since then very little has been heard of its occurrence and indeed there were reports that it had virtually died out from some of its former better-known haunts. However, in 1972 I happened to meet Mr L. McLeod who is doing special research work quite near Mont Ventoux. He mentioned that *E. scipio* had reappeared on this mountain in some numbers that summer. Col. J. N. Eliot also confirmed other fairly recent captures of this insect which was encouraging. With these records in view, Major General Sir George Johnson considered it well worth while trying to find this very local butterfly in some of its former localities.

Accordingly he kindly picked me up in his car in Surrey on 13th July and after spending the night at Folkestone we crossed by the car ferry from Dover on the Quatorze Juillet to find northern France far from being in a state of fête. The fine and very warm spell of weather had just broken as we made our way south across the northern plain and after flanking Rheims, we eventually put up at a very nice hotel at Sept. Saulx. Our destination on 15th July was Chalon-sur-Saône which had proved a very good centre in 1970 for the *Apaturas*. On the 16th we left our hotel in Chalon at an early hour and headed for the Forêt de Montcoy. Fortunately the weather had relented and when we reached this area it was warm and sunny. One of our first encounters were some worn specimens of *Lopinga achine* Scop. *Aphantopus hyperanthus* L. was in numbers with some f. *arete*. A tall species of *umbellifer* seemed a great attractant, especially for *Araschnia levana* L. which was in great plenty and very fresh as also were *Argynnis paphia* L. and *Fabriciana adippe* Schiff., but both *Mellicta athalia* and *Brenthis daphne* Schiff. were past their best. It was not long before males of *Apatura iris* appeared well before midday, often flying round the car and sometimes settling in the roadway. But it was soon apparent that they were not nearly so numerous as in 1970 when my companion had seen

them in dozens. On this occasion we only recorded a single *Apatura ilia* Schiff. of f. *clytie* Schiff. which was already worn.

The morning of the 17th we went further afield to another *forêt* which proved very poor for species so we returned to our former haunt where we saw and took further *A. iris*. Most of the species of the previous day with the addition of *Issoria lathonia* L. and *Leptidea sinapis* L. were about with the commoner Vanessids. We once more escaped from the heat of the day by visiting a delightful little restaurant, tucked away on a remote road in the forest.

We set out early on 18th July for a further few hundred miles to the south travelling via Grenoble and finally staying at a very pleasant hotel at Château Arnoux at the junctions of the roads to Avignon and Digne which was only 15 miles away. This was to be our headquarters for a further week. The next morning we motored to the Mont de Lure, some 20 miles away. There is now a good road right over the summit at nearly 6000 ft. The day was sunny but a strong wind made conditions none too easy at the high levels. En route through the forest on the lower slopes we had stopped at several spots where butterflies were flying in plenty, notably at one which harboured a large clump of the tall ground elder which was alive with lepidoptera. Both sexes of *Erebia ligea* L. were abundant but needed picking, while the elder provided many *A. paphia*, a few *B. daphne* and *Mesoacidalia aglaia* L. together with some huge *Brintesia circe* F. and a good many still fresh females of *Nordmannia ilicis* Esp. with orange patches. When we reached the summit we found what appeared to be the path where Mr Howarth had had such success with *Erebia scipio* Bdv. in 1950, but all that came into our nets were several rather small *E. meolans* de Prunner careering over the rough scree. We had considered descending by the road on the north face, but when we saw an ominous notice about rock falls, we decided to return by our original route which proved most fortunate, as we stopped in the early afternoon on the edge of some scree where a number of *Erebias* were flying. We caught several which we thought were *E. scipio* but back at the hotel they once more proved to be only *E. meolans*. However, encouraged by these numbers of *Erebias* we returned the next morning of the 20th under ideal conditions with no wind and a cloudless sky. The road at about 5000 ft was constructed along a fairly steep cliff of white scree with very little vegetation leading from a gap with a precipice facing to the north. I noticed several *Erebias* flying along the bank on this stretch of the road and the first one I caught was an undoubted male *E. scipio*. It had the squarer forewings with two apical spots and the black undersides of the hindwings, completely devoid of spots which readily distinguishes it from males of *E. meolans*. We spent the next few hours parading up and down this half-mile length of road where *E. scipio* males were flying in numbers, often several together, but never easy to

catch as they were most alert and dodgy. Almost all those taken seemed to be in prime condition and most handsome with their velvety black livery. Several *Parnassius apollo* L. were flying at higher levels among trees and herbage together with some large *Hipparchia semele* L. Other new species seen that day included *Coenonympha arcania* L. and *Polygonia egea* L. at the lower levels. Another superb day welcomed us on 21st July when we once more ascended the Mont de Lure to our area of the previous day where *E. scipio* males were even more plentiful. They seemed to hug the bare scree and never to leave it. In areas where any substantial vegetation occurred, there was not a sign of them. Some large *Lasiommata maera* L. were also flying on the scree and lower down were rather worn *Satyrus ferula* L.

On 22nd July we motored to Digne which I had last visited in August 1963. We had to approach the town by a detour on the south bank of the River Bléonne as a few days before our arrival in this region the main bridge into Digne had been swept away after torrential rains lasting four days. However the floods had subsided by the time we attempted to visit that rich region. Our first stop outside the town was where the road to the mountains of the Dourbes range forks from that to the Thermes. I noticed a Skipper settled on a plant overhanging the river and on capture it proved to be *Pyrgus foulquieri* Oberthür, quite a local species. A field nearby harboured many of the Tiger moth *Callimorpha hera* L.

We then followed the route up the winding road leading towards the valley below the Dourbes heights which had been one of my collecting grounds in 1963, but almost the only butterflies there were a quantity of *Lysandra coridon* Poda and a few *Plebeius argus* L. However, on our descent we found a glade with plenty of lepidopterous life including *Iphiclidea podalirius* L. and *Hipparchia fagi* Scop. darting about among the small oaks. The only *Leptidea* I saw turned out to be *L. duponcheli* Staud. with the dark underside to its antennae. Among the more interesting Blues were *Agrodiaetus ripartii* Freyer and *Meleageria daphnis* Schiff. *Clossiana dia* L., *Pyronia cecilia* Vall. and *Coenonympha dorus* Esp. were also on the wing in this rich locality.

We motored over to the Mont de Lure on the 23rd, again in glorious weather and once more found males of *E. scipio* in quantity, but no sign of any females. As before the patches of elder were alive with insects with many more *E. ligea*, *Brenthis daphne* and *Hipparchia alcyone* Schiff. The morning of 24th July we set out for Mont de Lure, but it became so overcast that we turned back and revisited Digne, this time going to a piece of rough and wooded ground immediately outside the town which had proved so fruitful in 1963. And we were not to be disappointed as the locality had not altered at all in the past ten years and was especially rich in the big Satyrids such as *Brintesia circe* and *Satyrus ferula* F., mainly along a bramble bank.



During our week at Château Arnoux on the warm nights several moths entered our rooms, many of which are well-known common species in England, but a notable visitor was the scarce *Nycteola degenerana* Hübn. On the 25th we left the Digne area and headed for Avignon passing through some picturesque country near Sault where the lavender fields in full bloom were a wonderful sight, though they did not seem to attract many butterflies. We halted several times en route in likely-looking spots. Again the large Satyrids predominated including *H. fagi* and *H. alcyone* with the addition of *Hyponephele lycaon* Kuehn. We skirted the wooded slopes of Mont Ventoux and at a small restaurant where we had lunch, I was surprised to see on the window a perfect specimen of the scarce Emerald moth *Thalera fimbrialis* Scop. We went on through Carpentras to Avignon arriving in the evening. We were later visited by Mr Leonard McLeod whose headquarters were quite close to Mont Ventoux, another mooted locality for *E. scipio*. July 26 dawned fine but very windy in the Avignon region so that we decided to try the Vallée de la Nesque recommended by Mr McLeod. This turned out to be a deep gorge to the south-east of Avignon with a very tortuous road leading along a steep cliff edge with a good precipice. Not much seemed to be flying till we got about half way along the gorge when we happened to stop at a bend in the route with a narrow path leading through some trees to a small glade which appeared to be full of insects. One of the notable features was the numbers of Hairstreaks which covered four species *Quercusia quercus* L., *Nordmannia ilicis* Esp., *N. esculi* Hübn. and *Strymonidia spini* Schiff. A numerous species was the Copper, *Heodes tityrus* Poda, while the chief Satyrids were *Satyrus actaea* Esp. and *Arethusana arethusa* Schiff. Among the skippers were *Erynnis tages* L., *Spialia sertorius* Hoffmann, and *Pyrgus foulquieri* Oberthür, which was one of our main quarries.

We were also surprised to find the whole locality alive with *Lithosia quadra* L. that large Footman with its spectacular female. We revisited this area and special locality on 27th July. In addition to the butterflies already cited we saw our first *Nymphalis polychloros* L. and *Gonepteryx cleopatra* L. as well as *Thymelicus acteon* Rott. and *Carcharodus flocciferus* Zeller. There were also many *Colias australis* Verity flying rapidly over the rugged slopes in the upper part of the valley. The following morning we joined Mr McLeod and Mr Bond a little way beyond Carpentras and made the ascent of Mont Ventoux under ideal conditions. We motored up through the fir forest by a special road that crosses the main *massif*. En route we saw *Nymphalis antiopa* L. and several *Papilio machaon* L., but when we surveyed the white scree near the summit on the north side of the mountain, there was no sign of *E. scipio*. The only high-level Blue there was *Polyommatus eros* Ochs. We started on the return route in the early afternoon stopping at an elder patch which harboured many Hairstreaks, in particular some



outsized *S. snini* and *Q. ouercus*. Satyrids were well to the fore including *H fagi*, *S. actaea*, *S. ferula*, *H. lycaon* and *Chazara briseis* L. Later that day Mr McLeod telephoned us to say he had stayed on and visited the south-facing slope beyond the summit to find *E scipio* flying in plenty, but all males. So on 29th July we motored direct to this area where new roads were being made for military purposes we were told. Here the bare scree is flat and quite accessible, but it was only at its most eastern end that we saw a number of *E. scipio* which flitted up in the rather intermittent sunny intervals which grew more and more infrequent till about midday a complete cloud cover enveloped the summit of Mont Ventoux at just over 6000 ft. The temperature dropped quickly and ended any further collecting for ourselves and for Mr Bartholomew and Mr A. Bond who were also on the same quest. The only additional species we had noted at lower levels was *Brenthis ino* Rott., bringing the total of 85 species of butterflies observed during our 18-day sojourn in France from 14th to 31st July.

On 30th July we motored north up the autoroute via Lyon to Beaune where we spent the night before doing another stretch of 300 miles across country to Arras for a further night.

Early on 1st August still in glorious weather we embarked at Calais and were back that afternoon in Surrey after a most enjoyable and very successful trip which brought us a fine series of males of *Erebia scipio*. During August Mr McLeod kindly sent several fresh females which only started appearing the first week of that month.

Three Oaks, Woking. 12.x.73.

#### REFERENCES

- Howarth, T. G. (1951-52). *Proc. and Trans. South London Entom. and Nat. Hist. Soc.*, 52-65.  
 McLeod, L. (1972). *Entomologist's Rec. J. Var.*, **84**: 156-163.  
 McLeod, L. (1973). *Entomologist's Rec. J. Var.*, **85**: 211-214.

## Another Record of Migratory Flights of the Dragonfly *Pantala flavescens* (Fabricius) (Odonata, Libellulidae) in Calcutta

By TRIDIB RANJAN MITRA  
 Zoological Survey of India, Calcutta

Mitra and Mukherjee (1967) reported a migratory flight of the dragonfly *Pantala flavescens* (Fabr.) in Calcutta noticed by one of them (T.R.M.) in September 1966. The present note records another instance of migratory flight by these dragonflies observed by me six years later in Calcutta.

On the 17th September 1972, while waiting for a conveyance around 10 a.m. at the V.I.P. Road, on the eastern fringe

of the city of Calcutta, I noticed a huge swarm of *Pantala flavescens*, heading (West-east direction) east towards the Salt Lakes. A few thousand specimens were involved, flying at a height of about 10 metres (25 ft.) above ground level, in irregular lines of 6 to 10 specimens deep. The speed of flight was normal, and about the same as observed on the earlier occasion in September 1966. Though the swarm was flying in more or less a straight line, some individuals occasionally strayed from the column, and others rested for a while before rejoining the mainstream.

In the period following the massflight the populations of *Pantala flavescens* decreased substantially in the locality and the species completely disappeared by the third week of October.

Unfortunately the return flights have not been observed by me, nor there seems to be any record of return flights by this species in literature. Where this species goes away in cold weather is also not known. I had seen flying individuals of *Pantala flavescens* in the month of February 1971, and 1973, in the Salt Lake area.

Records of migratory flights of *Pantala flavescens* (Fabr.) from different parts of the world are available in literature. Williams (1958), Corbet *et al.* (1960) and Corbet (1962) have reported such flights. Fraser (1936) reported *Pantala flavescens* as a migratory Odonate species from India without giving specific locality or other details. He remarked, "... they emerge towards the end of September and commence a migratory flight which may last right on into November". The season during which I observed these flights seems to accord well with Fraser's remarks.

#### REFERENCES

- Mitra, Tridib Ranjan & Mukherjee, Sisir Kumar (1967): Story of Dragonflies (in Japanese) Part 3 *Nature Study*. 13 (11), (No. 163 pp.6 (108)-7 (109).
- Williams, C. B. (1958): Insect migration: pp xiii+235 New Naturalist, Collins. St James Place, London.
- Corbet, P. S., Longfield, C. & Moore, N. W. (1960): Dragonflies. pp.xii +260 Collins, St James Place, London.
- Corbet, P. S. (1962). A Biology of dragonflies. pp.xvi+247 H.F.&G Witherby, Ltd., London.
- Fraser, F. C. (1936): Fauna of British India. Odonata. Vol. 3. p.416 Taylor & Francis, London

---

ADELA CROESSELLA (SCOP.) IN PERTHSHIRE.—Meyrick gives the distribution of *A. croesella* (Scop.) as "England to York". On the 26th June 1973 I captured a specimen in Perthshire about three miles from Killin on the road to Ardeonaig. No privet was seen at the spot but other foodplants for this species have been recorded on the continent.—J. ROCHE, 16 Frimley Court, Sidcup Hill, Sidcup, Kent.

## Sri Lanka

By F. M. G. STAMMERS, M.A., M.B., B.S.

I have taken 'The Entomologist's Record' for many years — but I do not remember any article on the Butterflies of Ceylon. I thought that the following might be of interest to readers. I know most Eastern countries well, but of all these I consider Sri Lanka the nearest to Paradise. The temperature varies little throughout the year; it is usually about 26 deg. or 27 deg. C., and humid in the southern Low Country. Water is plentiful owing to the monsoon rains—N.E. and S.W. It is conserved in many huge tanks—artificial lakes. The flora ranges from temperate in the Hill Country—to tropical. The many varieties of coconut are ubiquitous: the colours of the bananas range from green to the yellows, and even pink. There are superb pineapples, and every imaginable fruit to delight the eye as well as the palate. The Island is some 270 miles long — from Point Pedro in the north, to Dondra Head in the south. It is about 140 miles across at the widest point. The mountains rise to 8820 feet. Although 5° to 10° north of the Equator, frosts occur at night in the mountainous districts. Seen from a low-flying aircraft, the Low Country is brilliant with the chequers of the vividly green 'paddy' fields. Butterflies are numerous, and occur almost everywhere. There are 250 species in an area about half the size of England. The Sinhalese and Tamils are gentle, kind and with gracious manners. English people are accepted wherever they go. Most people speak English, others are extremely fluent. I would like to say more about Ceylon, but I must confine myself to Entomology.

In 1942-3 I spent a year in Ceylon as a Medical Entomologist in the Royal Navy. During that time I made a collection of butterflies. This was in no way complete, as I could only collect when I was off duty. Even then I was somewhat restricted as to where I could go. I returned to Ceylon during the winters of 1971-2, and 1972-3. I took an excellent book—'THE BUTTERFLY FAUNA of CEYLON', by L. G. O. Woodhouse. Also my net. As soon as I had identified a butterfly I had caught—I let it go. I have come to a stage in life when I would rather see insects flying free; than killed and put in a cabinet. To my knowledge there are 48 species of Blues. I give no names for these—as they were mostly small, and difficult to identify without damage. They only flew a foot or so before settling again, and kept near to the ground. They were very common on grassland around Trincomalee. Also I do not list any Hesperidae—47 species. I only took my net occasionally; as I was more interested in the varied aspects of Ceylon life, and the magnificent scenery. The butterflies mentioned were seen in the following districts: —Colombo, Mount Lavinia, Negombo, Polonnaruwa, Anuradhapura, Jaffna, Nuwera Eliya, Kurunegala, and particularly around the Harbour of Trincomalee.

On Christmas Day 1972 there were seven or eight monsoon storms at Trincomalee. The N.E. monsoon was a heavy one

that year. I saw many *Precis iphita pluvialalis* on the wing. The next day was very hot and humid with a light breeze. On the Island of Great Sober—so named, as the British used to land drunken sailors there to 'cool off'—in the Inner Harbour; I saw *Precis almana almana*, and a number of *Phalanta phalanta* and *Ariadne ariadne minorata*. This was sheer jungle, and impossible to penetrate far without machettes (I had hoped to return with these another day; but was then told that it would be unwise—as there were bears on the Island).

Many of the butterflies were feeding on *Antigonon leptopus*—(Polygonacea) which was growing near the sea. At Mount Lavinia—on the cliffs, there were very large patches of this plant covering the ground, with its attractive pink flowers.

The following are the species taken by me, and in my cabinet; or those set free after identification:—

DANAIDAE.—*Danaus similis expromata* Butler, *D. limniace mutina* Fruhstorfer, *D. aglea aglea* Cramer, *D. chrysippus* L., *Euploea phaenareta corus* F., *E. core asela* Moore, *E. klugii sinhala* Moore.

SATYRIDAE. — *Ypthima celonica* Hewitson, *Orotiaena medus mandata* Moore, *Melanitis leda ismene* Cramer, *Elymnias hypermestra fraterna* Butler.

NYMPHALIDAE.—*Precis orithya swinhoei* Butler, *P. iphita pluvialalis* Fruhstorfer, *P. almana almana* L., *P. lintingensis hierta* Fruhstorfer, *Hypolimnas bolina* L., *H. misippus* L., *Nepitis hylas varmona* Moore, *Cethosis nietneri nietneri* Felder & Felder, *Ariadne ariadne minorata* Moore, *Telchinia violae* Fruhstorfer, *Phalanta phalanta* Drury.

ERYCINIDAE.—*Abisara echerius prunosa* Moore.

LYCAENIDAE.—*Talicauda nyseus nyseus* Guérin-Ménéville, *Castalius rosimon rosimon* Fruhstorfer, *Loxura atymnus arcuata* Moore.

PIERIDAE. — *Eurema hecabe simulata* Moore, *E. blanda silhetana* Wallace, *E. brigitta rubella* Wallace, *Delius eucharis* Drury, *Leptosia nina nina* Fruhstorfer, *Hebomoia glaucippe australis* Butler, *Catopsilia pyranthe pyranthe* L., *C. pomona* Fruhstorfer, *Huphina nerissa phryne* Fruhstorfer, *Appias albina daraba* Felder & Felder, *A. paulina paulina* Cramer.

PAPILIONIDAE.—*Papilio polytes romulus* Cramer, *P. demoleus demoleus* L., *P. crino* Fruhstorfer, *Polydorus hector* L., *P. aristolochiae celonicus* Moore, *Troides helena darsius* Gray, *Chilasa clytia lankeswara* Moore.

The Old Farm House, East Street,  
Bluntisham, Huntingdon.



## Notes and Observations

**EURRHYPARA PERLUCIDALIS HÜBN. AND PARASCOTIA FULIGINARIA L. NEW TO HAMPSHIRE.**—A single *Eurrhypara perlucidalis* came to light here on 9th July 1973 and is of interest as apart from the well-known colony at Wood Walton and records from other East Anglian haunts such as Walberswick, there is only one record I can trace outside East Anglia, that from Kent in July 1960 (cf. *Ent. Rec.*, 72: 173). My garden adjoins an oak and hazel coppice and I have no doubt the Pyrale is a migrant here. I also took at light here on 22nd July 1973, a single ♂ *Parascotia fuliginaria*.—T. N. D. PEET, M.B., F.R.C.S., 2, The Glade, Waterlooville, Portsmouth, PO7 7PD, Hants. [With regard to *perlucidalis* in Kent, there is reason to suspect it may be resident here though perhaps only temporarily so. The specimen recorded above we disturbed about mid-day on 3rd July 1960 at Ham Fen near Deal, a small extent of primeval fenland and the only piece in the county.—Ed.].

**EUROIS OCCULTA L. AT WESTON-SUPER-MARE.**—It may be of interest to record the occurrence of a pale specimen of *Eurois occulta* in my moth trap here on 1st August 1973. — C. S. H. BLATHWAYT, "Amalfi", 27 South Road, Weston-super-Mare, Somerset.

**THE DAYTIME FLIGHT OF STANDFUSSIANA LUCERNEA L.**—The habit of this species of flying in the sunshine in mountain areas is fairly well known, though not often seen. My first experience of it was in August 1946, when a small dark form of the species was noted on suitable occasions before and after midday flying at great speed on the top 100 ft. or so of Tully Mountain, near Renvyle in Connemara, an isolated hill which reaches a height of 1200 ft.

In August 1973 I met the same species doing the same thing in rather different circumstances. The locality was the two highest peaks of the Sierra Nevada in the Province of Granada in South Spain, where the flight was confined to the top of the range, between 10,000 ft. and 11,500 ft.

I spent four days and nights in the Parador Hotel at 8000 ft., where I did not see the moth at all, either by day or in a trap at night. — D. W. H. FENNELL, Martyr Worthy Place, near Winchester, Hants.

**DANAUS PLEXIPPUS L. IN NORTHERN PORTUGAL.** — On 22nd September and again on 23rd September 1973, I had the pleasure of seeing and photographing a Monarch in the garden of 207, Rue do Molhe, Foz do Douro, a small town at the mouth of the river Douro, near Oporto. The weather was fine with a light northerly wind.

On 18th October, we saw numbers of Red Admirals (*Vanessa atalanta* L.) along the coast south of the Douro. They seemed to be coming in from the west against a light easterly wind.—C. L. BOYLE, Lt. Col., O.B.E., 34 Steele's Road, London N.W.3.

*MACROGLOSSUM STELLATARUM* LINN. RECORDS FROM KENT IN 1973.—I have had reports of two adult Humming-bird Hawks this autumn from Kent. One flying around flowering lavender at Woodstock Farm, Sittingbourne, at midday on 20th September. The other was feeding from late flowering honeysuckle at 10.30 on Sunday, 23rd September near the railway station at Herne Bay.—Dr I. A. WATKINSON, 2 Fairleas, Sittingbourne, Kent.

*ONCOCERA (SALEBRIA) OBDUCTELLA* ZELLER ON NORTH DOWNS IN KENT.—On the evening of Wednesday, 1st August 1973 whilst dusking for *Pterophorus tridactyla* L. and *P. baliodactylus* Z. on the North Downs near here, I disturbed a small Pyralid moth from a large clump of marjoram. I quickly netted the insect but in the gathering dusk could not identify it with certainty. I tapped several nearby clumps of marjoram in the hope of disturbing further specimens, but my attention was soon back with *tridactyla* which were now beginning to fly (these plumes are easily caught in the twenty minutes or so of twilight before darkness prevents even these little buzzing moths, reminiscent of miniature ghost moths, from being seen).

On arriving home I was delighted to see that the Pyralid was as I hoped *Oncocera obductella*, an insect recorded remarkably seldom nowadays. This beautiful moth has always been almost entirely restricted to parts of the North Downs in Kent and I consider myself very fortunate to have taken it. A return to the locality a few days later produced no more specimens, but in this exposed habitat the weather was inclement on that particular evening. Huggins (*Entomologist*, 1929, p.193) quotes a similar finding of *obductella* on the North Downs and watched his specimen, a female, ovipositing. He revisited the same plants again early the next summer and found the larvae which he managed to rear to adults. I shall follow in his footsteps next year with as good a chance of success.—Dr I. A. WATKINSON, 2 Fairleas, Sittingbourne, Kent.

MIGRANT LEPIDOPTERA IN LINCOLNSHIRE IN 1973. — Apart from *Hyles gallii* Rott. this year has provided a number of interesting migrants.

Two *Herse convolvuli* were taken, the first on 17th August and the second on 4th September in a Robinson light trap placed near a large bed of *Nicotiana affinis* I had planted near here. A third was taken at Alford on 28th September.

A single *Macroglossum stellatarum* L. was seen at Wiloughby, near Alford, on 26th September, at flowers of *Cerastostigma* and was seen for a week.

*Eurois occulta* L. appeared at Woodhall on 28th July, a second one here on the 29th July and at the same time G. W. Haggett took three in his M.V. trap at Lissington, near Market Rasen.

A single *Lithomoia solidaginis* Hubn. was found on a wall near here on 22nd September.

Probably one of the most spectacular of invasions of Lepidoptera in the county for many years was witnessed by Keith Paine, one of the wardens at the Gibraltar Point Field Station who recorded the sight each day of very many hundreds (but not, he thinks, very many thousands) of *Vanessa atalanta* L. coming in over the sea over a front of about two miles. The invasion started on the 26th August and persisted until 6th September. It started to wane on 7th September and petered out on the following day. Those of use near here who were fortunate enough to have beds of *Sedum* and Michaelmas Daisies in our gardens were rewarded for many days by the company of large numbers of what must surely be one of Britain's most beautiful butterflies. — R. E. M. PILCHER, The Little Dower House, South Thoresby, nr. Alford, Lincs.

MACROLEPIDOPTERA IN WEST SUFFOLK IN 1973.—A surprising thing is the arrival of quite a number of fen moths at my m.v. trap run in the garden here, but where they come from I cannot find out. There are some damp meadows containing small streams and sedge etc. about a mile distant, but when I have worked these at night I found practically nothing, except in one meadow well over a mile away I found many *Archanara dissoluta* Tr. In my garden trap over the years I have found quite a number of *Thumatha senex* Hübn., one *A. geminipuncta* Haw. and a few each of the following: *A. dissoluta* Tr., *Mythimna obsoleta* Hübn., *M. pudorina* D. & S., *Senta flammea* Curtis and *Nonagria typhae* Thunb.

Several people have said either on T.V. or in the newspapers that this year more butterflies than usual have been seen. My experience has been quite the opposite, and in regard to the Holly Blue (*Celastrinus argiolus* L.) I have not seen a single one in the garden where it is usually numerous. Nor have I seen any White-letter Hairstreaks (*Strymonidia w-album* Knoch), which were quite plentiful at private blossom last year, and when I also got a number of larvae in a nearby wood.

If any collectors come to this area in 1974, I should be very pleased if they would call and see me. Being now retired with a fair amount of spare time, and having explored the Fen and Breckland area for nearly 30 years, I could possibly produce some useful information. — REV. G. A. FORD, The Rookery Farmhouse, Norton, Bury St. Edmunds, 11.xii.1973.

MACROLEPIDOPTERA AT WATERLOOVILLE IN 1973.—It is worth recording a number of interesting captures for here this season particularly since the wood adjoining my garden is shortly to be cut down for housing. *Lymantria monacha* L. and *Trichiura crataegi* L. occur, *Tethea* or D. & S. and *Aspalia diluta* D. & S. I have seen in numbers and there is a strong colony of *Odontosia carmelita* Esp. I took my first *Euproctis chrysorr-*



*hoea* L., probably windblown from the coast which is only four miles away as the moth flies. I took a single *Apoda avellana* L. in June, and in August *Caradrina ambigua* D. & S. was plentiful. *Haplotis venustula* Hubn. is well known locally, and a single specimen occurred in July. *Moma alpium* Osbeck appeared in June, the first time I have ever seen this insect. The wood here, holds a large amount of golden-rod, and adult *Cucullia asteris* D. & S. and *Eupithecia expallidata* Doubl. arrived at light. Larvae of both species were subsequently easy to find, and I look forward to a bred series of each next year. Other captures, new to me have been *Acasis viretata* Hübn., *Cepphis advenaria* Hübn. and *Pseudoboarmia punctinalis* Scop. The season has just finished with six *Lithophane leautieri* Boisd., all males at light, and on 11th November Dr John Langmaid and I found a female moth sitting outside a pub at Emsworth not far from here, which has since laid 30 apparently fertile eggs.

Dr Langmaid has generously introduced me to some Portsmouth specialities — *Ennomos autumnaria* Wernb., *Eupithecia phoeneciata* Ramb. and the larvae of *E. millefoliata* Rössl. All occur within the densely built-up city. Both of us appear to have missed out on the Sphingid migration of this summer, but the above notes indicate some of the compensations. — T. N. D. PEET, M.B., F.R.C.S., 2, The Glade, Waterlooville, Portsmouth, PO7 7PD, Hants.

MELEAGERIA DAPHNIS D. & S. IN CENTRAL SPAIN.—As I can find no previous record of *M. daphnis* D. & S. from the province of Teruel it might be of interest to report that I found a large and very fine female a few miles east of Albarracin on 3rd August 1973. As entomologically this must be one of the most explored areas in Spain, I assume this species to be rare in this region. Manley and Alcard (*A Field Guide to the Butterflies and Burnets of Spain*) record two specimens from Tragacete in the neighbouring province of Cuenca, the nearest recorded locality I can find. Higgins and Riley (*A Field Guide to the Butterflies of Britain and Europe*) are of course wrong in stating as they do that this species does not occur in Spain. This Spanish female is both larger and darker than my specimens from southern France (Digne).—M. J. PERCEVAL, Holmesdale Cottage, North Holmwood, Dorking, Surrey.

BUTTERFLY TRAPPING.—In their *Notes on the Butterflies of Corsica* (1973, *Entomologist's Record*, **85**: 149-153) A. L. & M. N. Panchen record, with what appears to be a little surprise, the capture of *Vanessa atalanta* L., *Polygonia c-album* L. and *Hipparchia aristaeus* Bonelli in traps in addition to *Charaxes jaspis* L.

I cannot help feeling that a certain misconception has arisen from the fact that accounts of trapping in Africa are so often connected with *Charaxes*, and although the *Charaxes* are greatly attracted to fermented fruit baited traps, they are by no means the only group that is so attracted. The Satyridae



are attracted in numbers, in fact on dull days they are often the only species attracted. Amongst the Nymphalidae, the Charaxiinae are the subfamily most often attracted, but there are exceptions to this, in the Shimba Hills for example *Ch. pleione* Godt. *bebra* Roths. never comes to bait, although Owen & Chanter (1972, *J. Ent. (A)*, **46**: 135-145) record it coming to traps in small numbers in Freetown. Many species of Nymphalinae, occasional Neptidinae, many Eunicinae and Eurytelinae come to traps, but I have never taken Marpesiinae, Vanessinae or Argynnidinae in this way. *V. atalanta*, with its well known liking for fermented fruit would obviously come to traps, but the African Vanessinae most commonly met with, viz. *Salamis*, *Hypolimnas* and *Precis*, do not share this habit.

Of the other families, the Libytheidae are frequently trapped, but I know of no case of Papilionidae, Pieridae, Danaidae, Acraeidae, Lycaenidae or Hesperidae coming to fruit bait, although Owen & Chanter (*loc. cit.*) do record very small numbers of Lycaenidae and Hesperidae in Freetown. They also record Libytheidae in very small numbers only, contrary to East African experience.

Males of certain Danaidae are attracted to withered and fermented leaves of certain plants belonging to the Boraginaceae, and could presumably be trapped using this as bait.

Males of the Papilionidae, Pieridae, Danaidae, Acraeidae and Lycaenidae are attracted to damp mud and, if it were possible to determine the actual attractive substances, they could undoubtedly be caught in traps as easily as those species that are attracted to fermenting fruit.

I have known collectors who consider the use of traps unsporting, but they have never tried to catch the large blue and black *Charaxes* species with a net in a shade temperature of 90 deg or more and a high humidity. In any case, I cannot see that baited traps for butterflies are less sporting than mercury vapour traps for moths. — D. G. SEVASTOPULO, F.R.E.S., Mombasa.

STRANGE EXPERIENCES WITH *CUCULLIA ABSINTHII* L.—When I left Portland in 1939—where I had as was to be expected bred and caught many *absinthii*—I took with me a wormwood plant. This I had in Kent, near Sevenoaks from 1939-44. I then moved to Balsham near Cambridge, taking the same plant with me. I was there from 1944-67, and during this period (I did not make a note of the year) I found in one month 13 *absinthii* larvae on it, which all failed to pupate. I then moved to Norton near Bury St Edmonds in 1967, taking my wormwood plant with me, now about 30 years old! To my surprise this summer I found 4 *absinthii* larvae feeding on it, only one of which was able to pupate. I do not think this species has ever been recorded from Cambridgeshire or West Suffolk, but according to South it has been found on the Suffolk coast. — Rev. G. A. FORD, The Rookery Farmhouse, Norton, Bury St Edmonds, 11.xii.1973.

**LONGEVITY IN *THECLA BETULAE* L.**—On 11th September 1973 I made an excursion to the borders of Oxfordshire and Buckinghamshire to obtain a female *Thecla betulae* for egg laying. One was soon captured and although very worn its abdomen was distended. The butterfly served me exceedingly well by laying well over seventy ova. But more surprising to me was the length of time this insect lived. Housed in a portable cage in the walled garden and fed on a diluted solution of honey and sugar it was content to crawl and rest on the branches of its foodplant and bask in the late autumn sunshine. It finally expired on 5th November having survived for 55 days from the date of its capture, and during this period there was a number of ground frosts. This leads me to wonder whether *betulae* lives as long in the wild, and if so whether the butterfly has a longer life span than is generally realised. — DAVID BROWN, 25 Charlecote, near Warwick, Warwickshire.

## Current Literature

**British Tortricoid Moths. Cochylidae and Tortricidae: Tortricinae** by J. D. Bradley, W. G. Tremewan and Arthur Smith with colour plates by Brian Hargreaves. The Ray Society, 1973.

In almost 70 years since Barrett's important treatise there has been little to rival this exceptionally fine addition to our works on British micro-lepidoptera. This group receives scant attention by the majority of our entomologists, chiefly due to the paucity of readily available, illustrated and up-to-date literature. This volume, the first of two which are planned by the Ray Society to cover the British Tortricidae goes some way to fulfilling this need. All the known British species of Cochylidae and Tortricinae are described and illustrated in colour; with many species the feeding habits are also portrayed.

Far from being solely a reference book on this group of moths, it is in its own right a passably comprehensive text book, covering many aspects of the study of lepidoptera. In the introduction, the authors break down the superfamily Tortricoidea into its component sub-families, discussing some of the classification problems of the respective genera. The general wing patterns and their variation are also discussed. Considerable attention is then devoted to various physical characteristics of this group; adult wing venation and head features, larval and pupal structures all being lucidly illustrated with deliberate care to clarify the points made in the text. Notes are included on collecting, killing and setting the various stages, and methods of preparing adult specimens for examination of wing venation or genitalia structure are described. All the means for a positive identification of a dubious specimen are therefore brought together within the same binding. The introduction is brought to an end with a discussion on the phylogeny of the families, sub-families and tribes of the

British Tortricidae. A classified list of species covered in the ensuing pages is then given following that of the newly revised Kloet and Hinks list of 1972.

The rest of the text is devoted to the description, biology and distribution of each of the nearly 140 native species of Cochylidae (Phaloniidae) and Tortricinae. Line drawings to illustrate interspecific differences or points of interest are included where appropriate. Each species is cross referenced to Barrett, Pierce and Metcalf, Meyrick and Ford and further relevant references are made where appropriate in the text. In all, over 300 references to individual papers or works are made and fully listed in the up-to-date bibliography. John Bradley and Walter Tremewan continuously draw on their years of experience of collecting and studying this group of lepidoptera; throughout the text this expertise is used to great effect in the accurate descriptions of all stages of the insects and their habits.

The most outstanding visual feature of this book is, however, the fine artwork of Brian Hargreaves and Arthur Smith. It is indeed a pleasure that these two outstanding entomological artists should together provide such a comprehensive and accurate coverage of the Tortricidae. It had been the original intention that the whole of the illustrative material should be carried out by Arthur Smith. However the enormity of the task necessitated the commissioning of Brian Hargreaves for the sub-family Tortricinae which he illustrated with the exception of the plate on *Acleris literana*. In general the plates are of an extremely high standard, nearly every species being represented by illustrations indicating its range of variation. With the more polymorphic species such as *Acleris literana*, *cristana* and *hastiana*, whole plates are devoted to named varieties of each species. A very slight exaggeration of wing length appears in a few species, but apart from this the artwork is very accurate. Arthur Smith's illustrations of some 60 larval habitats seem so life-like that the breeding of these insects will now be considerably facilitated for many lepidopterists.

The book is rounded off with the previously mentioned bibliography and a useful alphabetical list of the latin and common names of larval foodplants together with the names of species known to be associated with each plant.

Apart from a few very minor mistakes in the text references to the plates of *rugosana*, *maculosana*, *dilucidana*, *implitana* and *pronubana* the text appears free of errors. However, one irritation experienced in the use of the book was its lack of a cross referencing system from the plates to the relevant pages in the text. Indeed it would also have been useful to include in the index, plate numbers for the listed species. Professional etiquette was lacking in the way the name of Mr Hargreaves, the contributor of most of the colour plates, was omitted from the front cover. I respect the inclusion of Arthur Smith as a co-author but think a suitable acknowledgement to Brian Hargreaves would not be out of place.



The book has 251 pages in quarto, is nicely bound and printed on a good paper. It does appear to have a large number of nearly or totally blank pages, perhaps the deletion of some 50 or so of these might have brought the price of £11.50 down a little. Nevertheless it is an exceptionally fine monograph well worth the price and written in a most lucid and readable style. From the beginner to the experienced experimentalist this work on a group both frequently met with and comparatively large and colourful, will enable nearly all the species to be identified from the plates and description alone. In certain cases, however, recourse to genitalia preparation will still have to be made. It is hoped that volume two will maintain the same high standard. I.A.W.

**World list of films on bees and beekeeping**, Bee Research Association, London vii+67pp. 1973 50p

This work, having been fifteen years in preparation, has now been issued as a provisional edition since there are still a variety of gaps yet to be filled. For example, the dates, and even the country of origin, of many of these films are still unknown and it is hoped that by issuing this list, now, and stimulating further interest, many of the answers may be established and an authoritative edition produced at a later date.

There is a wide demand for such a list (no other having been issued) among both beekeepers and the general public. Through film, beekeepers are able to see equipment and apicultural practices in other countries, and to witness rare events which they may not have previously seen in their own colonies, as, for example, queen fighting and mating flights (including mating with drones in flight). Films showing such events are given in this list. Such films will obviously be of great value as archives, recording international beekeeping congresses (some of these are listed), and educationally, when used as teaching aids in schools and universities.

The majority of the 328 titles listed (produced by twenty-seven countries) involve some aspect of the cosmopolitan Honey or Hive Bee, but a few other bees are featured, for example, bumblebees and the North American Alfalfa Leaf-cutter Bee. Several films on social and solitary wasps, a sawfly (the Alder Woodwasp and its insect enemies), a film on ants, and one on termites are also listed. All of these films have been made since 1965.

The introduction has been written by the director of the Bee Research Association, Dr Eva Crane, and she traces the history of films on bees from the first one which was produced about 1905, to those of the present day. The introduction is followed by a section on the biology of bees, another on beekeeping (including the diseases and enemies of bees), and one on the economic uses and products of bees, as, for example, their unique role in the production of honey. The work culminates in useful indexes: special subjects, film titles, and finally distributors by country. G.R.E.





## **Exotic Entomological Specimens**

**LEPIDOPTERA — COLEOPTERA — MISCELLANEOUS  
INSECTS OF THE FINEST QUALITY WITH DATA**

20 page Illustrated Catalogue, 20p

**LIVESTOCK** — please send 15p for current catalogue of Ova,  
Larvae, Pupae, Cocoons, etc.

**R. N. BAXTER**

**16 BECTIVE ROAD, FOREST GATE, LONDON, E7 0DP.  
ENGLAND**

*FOR A PERSONAL AND INTERESTED SERVICE*

In your replies please mention "The Entomologist's Record"

## **ENTOMOLOGICAL CABINETS**

**Ten Drawer Unit Insect Sections**

---

*Sole manufacturers of the "Hill" Interchangeable  
Unit System formerly produced by J. J. Hill & Son Ltd.*

---

**R. Cattle, Limited**

*Precision Woodworkers*

P.O. BOX NO. 1

**Oxford Road, Gerrards Cross, Bucks.**

**Tel. Gerrards Cross 87131 (4 lines)**



# IMAGO BUTTERFLIES

LEPIDOPTERA SUPPLY & RESEARCH SPECIALISTS

Suppliers of Livestock — Exotic and European

Over forty species listed

Plus prospective list of species we hope to supply in the near future  
General Catalogue available on receipt of 30p (Overseas £1)

This includes subscription to our annual mailing lists

---

**62 HIGH STREET, CROYDON, SURREY, ENGLAND**

Please mention the Entomologist's Record

---

## FOR THE ENTOMOLOGIST

Apparatus, Books, Cabinets and Set Specimens

Price lists of the above are issued from time to time so if you would like to receive regular issues please send me a postcard stating your interests

---

**L. CHRISTIE**

**137 Gleneldon Road, Streatham, London, S.W.16, 2BQ, England**

(Postal business only)

*Official agent for publications of the Amateur Entomologist's Society*

---

**the BUTTERFLY FARM LTD. (Founded 1894)**

**Bilsington, Ashford, Kent England TN25 7JW. Tel. Ham St. 2513**

As the oldest farm in the world we are justly proud of our reputation as suppliers of the finest entomological materials.

For livestock and preserved specimens from all over the world; books new or old; breeding, storage and collecting equipment; educational displays, please write for lists and details of our Mailing Index.

We urgently need suppliers of surplus collections, books and cabinets, and also reliable suppliers of livestock.

Visitors especially welcome to look around *the* Butterfly Farm, please phone in advance. See our living and museum displays and our British Wildlife Sanctuary—to which a small charge will go.

---

# SARUMAN BUTTERFLIES

58 HIGH STREET, TUNBRIDGE WELLS, KENT

Telephone: Tunbridge Wells 31926

We offer an unrivalled personal service to the amateur collector and professional entomologist. British and Tropical Lepidoptera supplied, common and rare; also cabinets, equipment, books, prints, etc.

Catalogue of 1000 species (200 shown in colour), 85p + 10p postage

We are open daily except Wednesdays and Sundays

**Note**—We are always anxious to purchase surplus butterflies, books and complete collections, especially British. Highest prices paid

Please Mention the *Entomologist's Record*

## BRITISH NATURALISTS' ASSOCIATION



has twenty active branches in Britain and a world-wide membership. Its official organ, *Country-Side* (published three times a year), is the oldest-established British magazine devoted to general natural history

Membership subscription 75p per annum

Full details and application form obtainable from:

B.N.A., 'Willowfield', Boyneswood Road, Four Marks, Alton, Hants

---

## THE NATURALIST (founded 1875)

*A Quarterly Illustrated Journal of Natural History*

---

Edited by W. A. SLEDGE, Ph.D., B.Sc.

Annual subscription: £2.00 (post free)

Single numbers 50p

---

*Separates of the collected instalments of the:—*

### LEPIDOPTERA OF YORKSHIRE (Macrolepidoptera)

which appeared serially in *The Naturalist* (1967-1970) are also available on application. Price 50p, plus 4p postage

**The Editor of the Naturalist,**

Department of Botany, The University, Leeds, LS2, 9JT

---

## THE PROFESSOR HERING MEMORIAL RESEARCH FUND

---

The British Entomological and Natural History Society announces that awards may be made from this Fund for the promotion of entomological research with particular emphasis on:

- (a) Leaf miners,
- (b) Diptera, particularly Trypetidae and Agromyzidae,
- (c) Lepidoptera, particularly micro-lepidoptera,
- (d) General entomology,

in the above order of preference, having regard to the suitability of candidates and of the plan of work proposed.

Awards would be made to assist travelling and other expenses necessary for field work, for the study of collections, for attendance at conferences, or, exceptionally, for the costs of publication of finished work. In total they are not likely to exceed £150 in 1974.

Applicants need not be resident in the United Kingdom, and research in any part of the world may qualify.

Applicants should send a statement of their qualifications, of their plan of work, and of the precise objects and amount for which an award is sought, to R. F. BREThER-TON, C.B., M.A., F.R.E.S., Hon. Treasurer, Folly Hill, Birtley Green, Bramley, Guildford, Surrey GU5 0LE, as soon as possible and in any case not later than 31st March 1974.

---

## THE AMATEUR ENTOMOLOGISTS' SOCIETY

---

The Society was founded in 1935 to cater especially for the younger or less experienced Entomologist.

For full details of publications and activities, please write (enclosing 3p stamp to cover postage) to:—**R. D. HILLIARD**, Hon. Advertising Secretary, A.E.S., 18 Golf Close, Stanmore, Middlesex.

---



---

## EXCHANGES AND WANTS

---

*For Sale.*—Separates of "Emmet's Notes on some of the British Nepticulidae". Price 35p per copy. Printed covers for the collection of 5 parts.—Apply to S. N. A. Jacobs, 54 Hayes Lane, Bromley BR2 9EE, Kent.

*Request for Information* — Hothfield Local Nature Reserve, Kent (TQ/9645). I am preparing a paper on the insects of Hothfield LNR for presentation at a symposium on the area to be held in April 1974 (full details:—G. H. Morgan, 1 Somerfield Close, Maidstone, Kent.) I would be very grateful to receive any records of even common species of lepidoptera, or indeed any insect groups, not included in J. M. Chalmers-Hunt's account on the Lepidoptera of Kent (Ent. Rec. (1960), 72, 41 *et seq.*), in the compilation of Dr. E. Scott (Trans. Kent Field Club (1964) 2), or in the Kent Education Committee Booklet: Environmental Studies at Hothfield (this booklet is available from Mrs B. Dodds, Fairbourne Mill, Harrietsham, Kent)—Full acknowledgement will of course be made.—J. C. Felton, 20 Gore Court Road, Sittingbourne, Kent, ME10 1QN.

*Back numbers*—Our supplies of certain back numbers are now a little reduced and we would be willing to buy in a few copies of Vols.: 75, 77, 79, 82 and 83 at subscription rates. Due to an error there are now no further stocks of the January 1973 issue, we would therefore be indebted to anyone who could part with this issue.—S. N. A. Jacobs, 54 Hayes Lane, Bromley, Kent.

*Celerio galii*—*The Bedstraw Hawkmoth*—I have records of four *Celerio galii* being caught in July including one on the Ocean Weather Ship 'Weather Monitor' stationed some 400 miles west of Scotland and 200 south of Iceland. I understand that other specimens of this immigrant Hawkmoth have been caught and would welcome details of date, time and place of any captures. — R. A. French, Entomology Department, Rothamsted Experimental Station, Harpenden, Hertfordshire AL5 2JQ.

*For Sale* — Very high quality 16 drawer polished mahogany cabinet, now a valuable antique, bearing the name 'Watkins and Doncaster, 36 Strand, London, W.C.' With bolecion-moulded semi-circular head panelled door and lock, moulded plinth and top. Almost as new internally and in beautiful condition. Airtight drawers with concealed slots all round, size 18"×18"×2" deep, all recently recorked.—Height 3'6", depth 1'9½", width 1'9½" overall. £250. A. P. Gainsford. Tavistock 3203.

*Records of Sesiidae* — In preparing the material on clearwings for Vol. 2 of *The Moths and Butterflies of Great Britain and Ireland* (Editor John Heath), I would welcome recent records of any of the 15 known species. Precise details of localities are not required but only sufficient information to enable me to relate a record to a particular vice-county. Would subscribers having the required information kindly reply to: — B. R. Baker, Reading Museum and Art Gallery, P.O. Box 17, Town Hall, Reading, Berkshire, RG1 1QN.

*Distribution and Ecology of Insects* — An introductory course with this title is being directed at Preston Montford Field Centre by Dr M. G. Morris from 1st-8th May 1974. Enquiries should be addressed to:—The Warden, Preston Montford Field Centre, Montford Bridge, Shrewsbury, SY4 1DX.

---

# THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

(Founded by J. W. TUTT on 15th April 1890)

---

*The following gentlemen act as Honorary Consultants to the magazine:*

*Orthoptera:* D. K. Mc. E. KEVAN, Ph.D., B.Sc., F.R.E.S., *Coleoptera:* A. A. ALLEN, B.Sc.; *Diptera:* E. C. M. d'ASSIS-FONSECA, F.R.E.S.

---

## TO OUR CONTRIBUTORS

All material for the TEXT of the magazine must be sent to the EDITOR at St Teresa, 1 Hardcourts Close, West Wickham, Kent.

ADVERTISEMENTS, EXCHANGES and WANTS to Dr IAN WATKINSON, "Windrush," 2 Fairleas, Sittingbourne, Kent. Specimen copies supplied by Dr Ian Watkinson on payment of 40p or sterling equivalent which will be taken into account if the person in question becomes a full subscriber.

Changes of address, also enquiries regarding Back Numbers, Volumes and Sets of Volumes, to: S. N. A. JACOBS, 54 Hayes Lane, Bromley, BR2 9EE, Kent.

Subscriptions should be sent to the Treasurer, A. C. R. REDGRAVE, 2 Connaught Way, Tunbridge Wells, Kent, England.

REPRINTS: 25 copies, taken straight from the magazine are sent gratis to contributors of articles; these may contain extraneous matter. More formal reprints from re-set type may still be had at cost price, and orders for these should be given, at the latest, with the return to the Editor of the corrected proof.

ILLUSTRATIONS are inserted on condition that the AUTHOR DEFRAYS THE COST.

Contributors are requested not to send us Notes or Articles which they are sending to other magazines.

All reasonable care is taken of MSS, photographs, drawings, maps, etc., but the Editor and his staff cannot hold themselves responsible for any loss or damage.

---

## SPECIAL NOTICE

The Editor would be willing to consider the purchase of a limited number of certain back issues.

---

# WASPS

An account of the biology and  
natural history of social and  
solitary wasps

**J. Philip Spradbery**

'Dr. Spradbery's work will serve not only as an introduction to our present knowledge but also as a guide for those who wish to make useful additions to the subject'.

From the Foreword by **Professor O. W. Richards, F.R.S.**

"Likely to prove **the standard work** for years to come".

The Observer—Christopher Wordsworth.

"This readable and well-presented book . . . a **valuable addition** to the school library".

Times Educational Supplement—P. J. Baron.

"Nous ne pouvons que recommander aux amateurs de guêpes, et d'insectes en général, **l'ouvrage capital** du Dr. Spradbery".

Les Naturalistes Belges.

"It will without doubt for long be **a standard work** in its field".

Nature—M. F. Claridge.

£8.50. 23.8×15.9 cm (9 $\frac{3}{8}$ ×6 $\frac{1}{4}$  in) 424 pages preface 11 colour plates  
29 pages b & w plates line drawings maps appendices biblio-  
graphy index ISBN 0 283 97938 0

**Sidgwick & Jackson Ltd.,**

1 Tavistock Chambers, Bloomsbury Way,  
WC1A 2SG

# CONTENTS

Lepidoptera of Aberdeenshire and Kincardineshire. R. M. PALMER .. .. .	33
Butterflies in Tuscany, May-June 1973. C. G. M. de WORMS ..	45
In Search of <i>Erebia scipio</i> Bdv.: Southern France, July 1973. C. G. M. de WORMS .. .. .	49
Another Record of Migratory Flights of the Dragonfly <i>Pantala flavescens</i> F. in Calcutta. T. R. MITRA .. .. .	53
Sri Lanka. F. M. G. STAMMERS .. .. .	55
Notes and Observations:	
<i>Adela croesella</i> Scop. in Perthshire. J. ROCHE .. ..	54
<i>Eurrhynx perlucidalis</i> Hübn. and <i>Parascotia fuliginaria</i> L. new to Hampshire. T. N. D. PEET .. .. .	57
<i>Eurois occulta</i> L. at Weston-super-Mare. C. S. H. BLATHWAYT .. .. .	57
The Daytime Flight of <i>Standfussiana lucerneae</i> L. D. W. H. FFENNEL .. .. .	57
<i>Danaus plexippus</i> L. in Northern Portugal. C. L. BOYLE	57
<i>Macroglossum stellatarum</i> L. Records from Kent in 1973. I. A. WATKINSON .. .. .	58
<i>Oncocera (Salebria) obductella</i> Z. on North Downs in Kent. I. A. WATKINSON .. .. .	58
Migrant Lepidoptera in Lincolnshire in 1973. R. E. M. PILCHER .. .. .	58
Macrolepidoptera in West Suffolk in 1973. G. A. FORD ..	59
Macrolepidoptera at Waterlooville in 1973. T. N. D. PEET.	59
<i>Meleageria daphnis</i> D. & S. in Central Spain. M. J. PERCEVAL .. .. .	60
Butterfly Trapping. D. G. SEVASTOPULO .. .. .	60
Strange Experiences with <i>Cucullia absinthii</i> L. G. A. FORD .. .. .	61
Longevity in <i>Thecla betulae</i> L. DAVID BROWN .. ..	62
Current Literature .. .. .	62



595.7059

Ent.

# THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

*Edited by J. M. CHALMERS-HUNT, F.R.E.S.*

*with the assistance of*

A. A. ALLEN, B.SC., A.R.C.S.

C. A. COLLINGWOOD, B.SC., F.R.E.S.

NEVILLE BIRKETT, M.A., M.B.

H. C. HUGGINS, F.R.E.S.

S. N. A. JACOBS, F.R.E.S. (Registrar) S. WAKELY

Lieut. Col. A. M. EMMET, M.B.E., T.D., F.R.E.S.

H. B. D. KETTLEWELL, M.A. M.B., B.CHIR., F.R.C.S., L.R.C.P., F.R.E.S.



ANNUAL SUBSCRIPTION FOR THIS VOLUME No. 86

£4.00 Post free, for payment in sterling.

£4.25 if payment is made in Foreign Currency.

Is now due and should be paid to

*Hon. Treasurer:*

A. C. R. REDGRAVE, 2 Connaught Way, Tunbridge Wells, Kent

# *Studying Insects*

## **A Practical Guide**

**R. L. E. FORD**

**£2.50 net**

**0 7232 1705 X**

This is a revised edition of an earlier volume, *Practical Entomology*, and reflects the current emphasis on studying living insects rather than on collecting and killing them. Although primarily concerned with butterflies and moths, the book also covers groups such as ants, wasps and humblebees, and has sections on breeding insects and on conservation. With 16 pages of plates in colour and black and white.

# *Colour Identification Guide to British Butterflies*



**T. G. HOWARTH, B.E.M., F.R.E.S.**

**£3.00 net**

**0 7232 1710 6**

This attractive and useful guide contains the 48 colour plates from T. G. HOWARTH'S larger work *South's British Butterflies*. In addition there are sections on Variation, Conservation and Collecting, Families, as well as Information Tables, Glossary, Identification Key and Classified List of Butterflies.

**FREDERICK WARNE & CO LTD**

**40 Bedford Square London WC1B 3HE**



PLATE IV



*Lepidochrysops oreas junea* subsp. nov.

Fig. 1. ♂ Holotype (upperside).

Fig. 2. ♂ Holotype (underside).

Fig. 3. ♀ Allotype (upperside).

Fig. 4. ♀ Allotype (underside).

Figures 144 times natural size.



# A New Taxon of the *Lepidochrysops ortygia* (Trimen) Group (Lepidoptera : Lycaenidae) from the South Western Cape

By C. G. C. DICKSON

No. 30.

Mr G. E. Tite, in his paper "The *Lepidochrysops ortygia* Complex" (*Entomologist*, **97**: 1-7, Jan., 1964), included, amongst three new species, the rather small blue *Lepidochrysops* from the Cape Peninsula, under the name of *L. oreas*—with other material represented in the British Museum (N.H.) from as far to the east as Seven Weeks Poort and the Zwartberg Pass. Male specimens from these latter localities were noted as having "decidedly wider dark distal margins on the forewings".

The butterfly which is dealt with in this article was formerly included, by most observers, with nominate *oreas*, but investigation of a representative number of specimens (and comparison of the male genitalia) has provided evidence of its being at least a separate race. The writer prefers to treat it provisionally as a race of *oreas*; factors which it has not been possible to take into account as yet—such as differences which could occur in the 1st instar larvae—might finally give proof of a specific difference. There does seem to be some evidence of the two taxa overlapping in the Bot River—Hermanus areas and confirmation of this would, in itself, point to separate species being involved in the present case. In some respects this butterfly shows closer affinity to *L. quickelbergei* Swane-poel (*Novos Taxa Entomológicos*, **64**: 1-10, June, 1969), which was separated, as a species, from *oreas* on the basis of its external appearance alone.

*Lepidochrysops oreas junae* subsp. nov.

Both sexes of considerably greater average size than *L. oreas oreas* from the type — locality in the Cape Peninsula; forewings tending to be slightly less acute.

*Male. Upperside.*

All wings, of the violaceous-blue colour of nominate *L. oreas* but the tone varying in some specimens even more than in this race (occasional specimens being, in fact, much lighter and brighter, and two of the paratypes exceptionally so and of a silvery-blue tone reminiscent of *quickelbergei*). Other features similar to those of nominate *oreas*, and with variation in the width of the dark smoky borders, especially in the forewings—a few of the paratypes, though not the holotype, having these decidedly broad.

*Underside.*

Ground-colour with more light dusting than normally occurs in nominate *oreas* and with more prominent white marking in general in all wings. The dark markings as a whole also decidedly prominent and tending to be more conspicuous against their background.

*Forewing.* The dusting of white scaling over the inner-half of the wing, is especially noticeable on the veins. The post-median series of dark, white-edged spots, together with the discocellular marking, consistently well developed and more prominent on the whole than in nominate *oreas*.

*Hindwing.* White suffusion, and marking, very noticeable; the series of white sagittate markings frequently expanded and tending to lose their clear-cut form. The two black spots in area 7, especially the outer one, enlarged as a rule and thus more conspicuous than in nominate *oreas*.

Length of forewing: 15.0-20.0 mm. (18.0 mm., in holotype). The first measurement is that of an unusually small specimen.

*Female. Upperside.*

In general very similar to the female of nominate *oreas* in colouring and marking, the ground-colour being of a more true, less violaceous blue in some specimens, as in the allotype, and the black marking varying in its development in individual specimens.

*Underside.*

Characters noted for male repeated in female. The white dusting may not be quite as prominent in all specimens (being rather less so in the allotype) but is usually as noticeable as in male examples.

Length of forewing: 15.75-20.5 mm. (19.5 mm., in allotype). The first measurement is that of an abnormally small specimen.

Body and ancillary parts as in nominate race, apart from the white scaling and hairs possibly being more conspicuous, in some examples.

♂ Holotype, WESTERN CAPE PROVINCE: Klein Drakenstein Mtns., above Du Toit's Kloof (S. side), 26.xi.1972 (C. G. C. Dickson); British Museum Reg. No. Rh. 17316.

♀ Allotype, W. CAPE PROVINCE: data as for holotype; British Museum Reg. No. Rh. 17317.

Paratypes presented to British Museum (N.H.): data as holotype, 1 ♂, 3.iii.1973, 1 ♀ (C.G.C.D.).

Paratypes in the author's collection: as holotype, 8 ♂♂, 1 ♀ (C.G.C.D.); as holotype, 12.xii.1949, 4 ♂♂, 1 ♀ (A. J. Duke); Middenkrantz Berg, Fransch Hoek Mtns., 8.xi.1945, 2 ♂♂, 2 ♀♀ (C.G.C.D.); Tygerstels Kloof Mtns., S.S.W. of Rawsonville, 30.xii.1963, 1 ♂ (C.G.C.D.); Geelbos Laagte, Langeberg Mtns., E. of Montagu, C.P., 1 ♂, 11.xi.1962 (C.G.C.D.).

Paratypes in Coll. Mrs J. V. Sipser: as holotype, 1 ♂, 2 ♀♀ (J.V.S.), 1 ♂ (C.G.C.D.).

Paratype in Coll. Dr Jeffrey Kaplan: Du Toit's Kloof, 22.xii.1972, 1 ♂ (J.K.).

Paratypes in Coll. K. M. Pennington: Fransch Hoek, 6.xii.1957, 1 ♂, 3.x.1946, 1 ♀ (K.M.P.); Helderberg, C.P., 10.i.1963, 1 ♂ (K.M.P.).





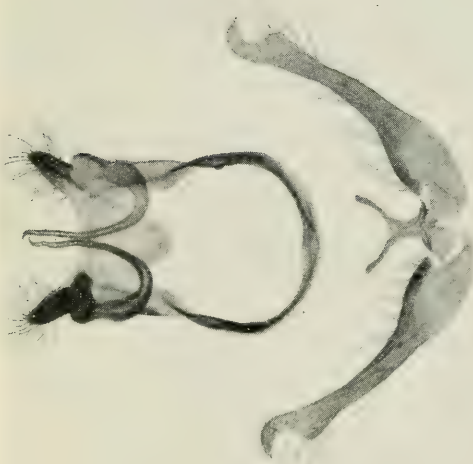
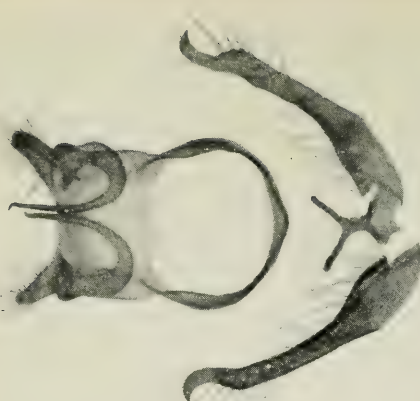
3



2



1





Paratypes in Coll. R. D. Stephen: Du Toit's Kloof, 1.xii.1969, 2 ♂♂, 14.xii.1970, 1 ♀, 28.xi.1971, 1 ♀ (R.D.S.).

Paratypes in Coll. W. Teare: as holotype, 30.x.1972, 1 ♂, 4.xi.1963, 1 ♀ (W.T.).

Paratypes in Coll. C. W. Wykeham: Bain's Kloof, C.P., 11.i.1961, 2 ♂♂ (C.G.C.D.); Du Toit's Kloof, 31.xii.1969, 6 ♂♂ (C.W.W.); Langeberg Mtns., above Grootvaders Bosch, 19.xi.1967, 4 ♂♂, 1 ♀ (C.W.W.).

Paratypes in Coll. Transvaal Museum: as holotype, 2 ♂♂ (C.G.C.D.), 4.xi.1963, 3 ♂♂ (Russell Badham): Assegaibos, La Motte, C.P., x.1940, 1 ♂ (G. van Son).

Paratypes in Coll. National Museum, Bulawayo, Rhodesia, as holotype, 2 ♂♂ (C.G.C.D.).

Several of the paratypes show a very strong contrast between the dark markings of the underside and their background—as those captured by Mr Pennington and Dr van Son, the undersides of which have very pronounced and widespread white suffusion. Expansion of the dark discal markings, occurs, not infrequently. The paratypes from above Grootvaders Bosch (100 miles to the east of the type-locality) exhibit clearly all the characters apparent in specimens from Du Toit's Kloof and seem clearly to represent the same taxon. It is felt that somewhat similar specimens, with greyer undersides, which occur at the top of the Zwartberg Pass do not answer, strictly, to this taxon.

In numerous male genitalia preparations, the *valves* have agreed with those of nominate *oreas*—with the same range of variation in those of each taxon. The lateral sclerites of the *aedeagus* have, up to the present, been more elongated in *junae* and with less apparent undulation of the dorsal margin itself. In dissections of two males of *L. quickelbergei* from the type-locality of Gydo Mtn., in the Ceres Division, kindly loaned by Mr R. D. Stephen, the valves have shown some thickening, but less of the definite, blunt angulation at the base of the hooked distal end which usually occurs in both *L. oreas oreas* and *L. oreas junae*. However, in a set specimen of *quickelbergei*, taken by Mr C. W. Wykeham on 14th December, 1962, in which the ends of both *valves* are visible, the entire distal ends are of the usual form of nominate *oreas*. In the two dissections of *quickelbergei* the lateral sclerites of the *aedeagus* are relatively short and broad, as in nominate *oreas*, but possess only a very shallow shoulder, dorsally, just before the distal tip. More dissections of *quickelbergei* would have to be studied before final conclusions could be drawn from the genitalia. Mr G. E. Tite (*op. cit.*) has mentioned the value of the lateral sclerites in the *Lepidochrysops*, from the taxonomic point of view—as observed in the first place by Dr C. B. Cottrell. The writer is indebted to both the foregoing for some further particulars concerning these structures in this genus.

*L. oreas junae* occurs commonly in mid-summer, or earlier, on the higher parts of the mountains above Du Toit's Kloof

and, as already indicated, has a much wider distribution. Under favourable conditions, it is an active flier about the eminences and summits of the mountains. The larval food-plant is *Selago* (Selaginaceae) and the later instars are undoubtedly passed in ants' nests, in which pupation will also occur. The writer captured specimens in company with Mr A. J. Duke on the date given for the latter's paratypes; and, recently, encountered them flying plentifully, when climbing the mountains with Mrs June Sipser, after whom this brilliant blue *Lycaenid* is named with much pleasure. A freshly-emerged female specimen was subsequently found, quite unexpectedly, on the same mountain range as late as 3rd March.

The earlier portion of the life-history of nominate *L. oreas* is described and figured in colour by Clark and Dickson in *Life Histories of the South African Lycaenid Butterflies* (1971, Cape Town).

"Blencathra", Cambridge Avenue,  
St. Michael's Estate, Cape Town.

#### PLATE V

##### Genitalia of *Lepidochrysops*

Fig. 1. ♂ Genitalia, *Lepidochrysops oreas oreas* Tite (Table Mountain, Cape Town).

Fig. 2. ♂ Genitalia, *L. oreas junae* subsp. nov. (Klein Drakenstein Mtns., C.P.).

Fig. 3. ♂ Genitalia, *L. quickelbergei* Swanepoel (Gydo Mtn., C.P.).

Each set of figures, represents: basic portion of structure, with valves and aedeagus removed; valves and juxta (fully compressed); and aedeagus (fully compressed).

Figures approximately 23.6 times natural size.

Photo: H. N. Wykeham.

## *Lycaena dispar rutila* Werneberg: A Chance Meeting at Ravenna, Italy

By LEN McLEOD

25 Sleaford Close, Balsham, Cambs. CB1 6DP

Driving past the oil refinery on 24th August 1973, one could not help but gaze in awe at the flames belching from the tops of several tall chimneys. The smell of industry almost made one choke. The river appeared to be dirty and polluted at this point but I thought to myself that perhaps higher upriver it would still be fairly clean.

We continued driving a short way past areas of sugar beet, vines and fruit trees until at last we came to our destination and turned off the road.

The particular orchards we were visiting receive large numbers of fungicide and insecticide sprays each year and are situated in a vast agricultural area. We could detect the smell

of chemical pesticides everywhere in the orchards.

Having completed our inspection, my colleagues were discussing something while I followed them slowly back to the car.

I had noticed the ditch running alongside the pathway when we drove into the orchard. It was situated more or less in the centre of this enormous area of apple, pear and peach trees.

"What are those flowers I can see? I will just have a quick look. Yes, they are a mint species, perhaps peppermint. Wait! What on earth was that flash of red? There it is again. My god, it's a male *dispar*. Fantastic, and there's another. What a find!"

How extraordinary it was that the first time I should ever see this species alive was not in a wild unspoilt area but in an intensely agricultural and industrial area.

My colleagues were engrossed in their discussion so I quickly proceeded along the ditch. There were many clumps of mint with *dispar* of both sexes feeding at the flowers. In all there were approximately fifty butterflies in this small stretch of ditch.

I decided to examine the butterflies more closely and stretched out alongside a clump of mint hardly disturbing them.

I thought what a pity it was I had not got a net with me. I decided that I must attempt to obtain a specimen as proof to my friends and as a rarity for my collection. How easy it was. With thumb and forefinger I picked up a fine female and killed it instantly with a pinch to the thorax. In five minutes I had two perfect pairs and proceeded back to the car where my colleagues were waiting for me.

I left them in blissful ignorance of my excitement and on the way back to the city I relaxed in the deep comfortable car seat and contemplated on how unexpected and unusual life can be. Within five minutes of leaving the site we were in a traffic jam and surrounded by the noise and bustle of civilisation.

## Some Lepidoptera in Radnorshire, 1973

By M. D. COX

(79 Pikemere Road, Alsager, Stoke-on-Trent ST7 2SN)

and R. G. WARREN

(Wood Ridings, 32 Whitmore Road, Trentham, Stoke-on-Trent ST4 8AP)

While on holiday in Radnorshire I took the opportunity of making a small collection of Lepidoptera on the nights of 22nd, 23rd and 24th August. The base was a country hotel at Pencerrig, two miles north of Builth Wells and five miles south of Llandrindod Wells, on the A483, and I restricted my collecting to the immediate area of the hotel grounds. On two nights I



used an ultra-violet "health" lamp, kindly loaned by Mr G. Carrel of the hotel, which proved most efficient in attracting moths.

The area is lightly wooded, having a Forestry Commission plantation to the west, and a small lake (Pencerrig) to the north.

M.D.C.

In view of Mr L. K. Evan's article (in *Ent. Rec.*, **85**: 33) and the paucity of records for Radnorshire, M.D.C.'s captures are listed below in full. Eight of the species are in the Evans list and of the remaining 13, four are in Gordon Smith's list (1954, Butterflies and Moths found in the County of Radnorshire, *Proc. Chester Soc. Nat. Sc.*, **1951-53**: 5-51), leaving eight marked with an asterisk for which there appears to be no previous record for Radnorshire.

R.G.W.

PYRALOIDEA.—*Hypsopygia costalis* F. GEOMETROIDEA.—*Idaea aversata* L., *Xanthorhoe designata* Hufn., *X. fluctuata* L., \**Ecliptoptera silaceata* D. & S., *Chloroclysta citrata* L., \**Plemyria rubiginata* D. & S., *Hydriomena furcata* Thunb., \**Perizoma didymata* L., \**Epione repandaria* Hufn., *Peribatodes rhomboidaria* D. & S. NOTODONTOIDEA.—*Notodonta dromedarius* L. NOCTUOIDEA.—*Noctua pronuba* L., *N. comes* Hubn., \**Paradiarsia glareosa* Esp., \**Antitype chi* L., \**Atethmia centrargo* Haw., \**Cryphia domestica* Hufn., *Cosmia trapezina* L., *Mesapamea secalis* L., \**Scoliopteryx libatrix* L.

## Notes on the Microlepidoptera

By H. C. HUGGINS, F.R.E.S.

(65 Eastwood Boulevard, Westcliff-on-Sea, Essex)

I was greatly interested in Dr Watkinson's note on *Agdistis bennetii* (Curtis) away from saltmarshes (*Ent. Rec.*, **85**: 245). I wrote a note on the appearance of this and other salt-marsh insects in my garden here in *Entomologist*, **90**: 269 (for October 1957). As this was some years ago and I can also add a few further records, I will recapitulate briefly what I then wrote.

My garden is 150 feet above sea level and over three miles, as the crow flies, from the nearest salt-marsh. I have not set my M.V. light at the right time of year since 1963, but till then I always took a few *bennetii* every year and in 1959 I took seven in one night. I also took two *Pediasia aridellus* (Thunb.) = *salinellus* (Tutt) which I have never seen nearer than Canewdon, seven miles away, several *Phalonidia affinetana* (Douglas) and seven *Bactra robustana* Christoph = *scirpicolana* Pierce, the food-plant of the last-named being at least four miles away. These insects nearly always turned up on a warm, rather damp night, with a S.W. wind.

In addition I have taken in my garden 3 *Schoenobius giganteus* (D. & S.), two *Donacaula mucronellus* D. & S. (of which only three examples have been recorded in Essex) and four *Calomotropa paludellus* Hübn. Mr Donald Down, when he was



living in the heart of the town amidst a net-work of roads and street lighting, also took *bennetii* in his M.V. Furthermore, I always saw at least a dozen *Hydraecia paludis* Tutt and three or four *Apamea oblonga* Haw. in a season, but only once saw *Leucania favicolor* Barrett though a great wanderer, as Robin Mere took it at Chiddingfold.

I do not think sufficient emphasis has been laid in the past on the wandering habits of micros. In August 1958 I took in my garden M.V. a specimen of *Nephopteryx semirubella* (Scop.) and the same night Mr A. J. Dewick took two at Bradwell-on-Sea. I collected for fourteen years at Gravesend and never found *semirubella* nearer than Luddesdown, on the pure chalk, some six miles away. My insect must have crossed the Thames and come twelve miles, and Mr Dewick's about forty. Not bad for a moth which is usually difficult to kick up!

I have also had one *Ptycholomoides aeriferana* (H.-S.) and two *Lozotaenia formosana* Fröl., although we have no firs or larches within twenty miles except an odd one in a garden.

These casual wanderings make me very tolerant of what appear to be curious records, although I never accept them without seeing the insect.

## Interspecific Competition in Butterflies

By Dr C. J. LUCKENS

(52 Thorold Road, Bitterne Park, Southampton SO2 4JG)

Mr Sevastopulo has once again thrown down the glove on the subject of interspecific competition in butterflies (1973, *Entomologist's Record*, Volume 85, page 247, and 1972, *Entomologist's Record*, Volume 84, page 76), and refers again to my casual comment on *Argynnis cydippe* L. and *A. aglaia* L. in a Sussex wood (1971, *Entomologist's Record*, Volume 83, pages 261-2).

The hypothesis that these two very similar butterflies compete in localities common to both is by no means a new one. There was a fair amount of correspondence on the same subject in *The Entomologist* in the mid 50's.

The fact of the matter is that in several instances the withdrawal of *cydippe* from a locality has coincided with the arrival or increased abundance of *aglaia*. I do not know, personally, of any cases where the reverse has happened, but in the relatively few localities where the two species fly commonly together a sort of dynamic equilibrium seems to operate.

A further example of this interspecific competition has occurred in North America, where the native *Pieris napi* L. and *P. protodice* Boisduval and Leconte (Checkered White) have both been displaced by the introduced *P. rapae* L. The two native species, formerly widespread, have been pushed by the advance of *P. rapae* into much restricted ranges and even different habits and habitats. No less an authority than Professor Alexander Klots states that the decline of these indigenous butterflies in North America is probably due to their failure

to meet the competition of *P. rapae* (*Vide A Field Guide to the Butterflies of North America East of the Great Plains*, pages 200-201). All these species feed on various *Cruciferae*. As Mr Sevastopulo would say "surely there is *cruciferae* enough for all".

In most cases I'm sure that there is; and similarly in most localities where *cydippe* and *aglaia* compete, neither is numerous enough to exhaust supplies of dog violet. Competition for food plant is probably not the critical factor in these cases. Something else is involved—perhaps the need for *lebensraum*? Whatever this unknown factor (or set of factors), there is little doubt that one species occupying its own particular ecological niche can be displaced from it by a similar (more vigorous) one occupying roughly the same position in the environment, even while this environment remains stable. I believe that this concept is recognised in all fields of zoology. A subtle ecological change can hardly have affected the former ranges of both *protodice* and *napi* in America in the same areas and at the same time that *rapae* has advanced and the two *indigenae* have declined.

I certainly have no simple answer to the mechanics of inter-specific competition, but it does exist, when both ecological conditions are stable and when there is sufficiency of food plant.

Perhaps Mr Sevastopulo could shed some light on what troubles him so much about this concept?

## Late Autumn in the Isles of Scilly

By R. P. DEMUTH

(Watercombe House, Oakridge, Glos.)

In an attempt to break new ground I visited St. Mary's between October 16th and 22nd 1973. I stayed at Normandy in the south-east corner of the island to obtain shelter from the anticipated westerly gales. I was also within a quarter mile of the shore line and an extensive fresh water marsh.

I might say that I went with high hopes of exciting migrants filling the M.V. trap and my optimism was braced by information that at least one *Anosia plexippus* L. was at that moment flying on the islands; a *Leucania unipuncta* Haw. in the M.V. trap at Lamorna Cove on my last night on the mainland and the taxi driver at St. Mary's who drove us to Normandy and explained that he had a *Herse convolvuli* L., which he had picked up on the quay, in a matchbox (some matchbox!).

The reality was very different. I found that Scilly had a bad autumn from September 15th onwards and on the day of our arrival there was a strong and bitterly cold north wind which persisted for the next three days with clear nights and a near frost. It was difficult to find anywhere suitable for sugaring but I put on a fair round on the trunks of the pollarded elms which act as windbreaks round the daffodil fields.

I sugared about 60 trees. On these cold nights the total visitors each night were 2, 13, 32, which shows how the numbers build up. The next two nights were spoilt by a heavy drizzle which soaked the tree trunks and produced hardly any insects and the final night was cold again with 22. The commonest insect was *Peridroma porphyrea* Schiff., then *Agrotis segetum* Schiff. and the remainder a mixture of *Amathes xanthographa* Schiff., *Noctua pronuba* L., (in good condition and presumably second brood), *Leucania l-album* L., *Omphaloscelis lunosa* Haw., *Apamea ypsilon* Schiff. and *Phlogophora meticulosa* L.

I had brought my generator but, due to the wind, I ran the trap from the house making use of the lee of the building. It produced the same insects as the sugar plus the following:—*Eumichtis lichenea* Hübn., the commonest insect and 50% of the total catch, *Aporophyla nigra* Haw., the next commonest, *Rhizedra lutosus* Hübn. also common and a few *Ochropleura plecta* L., *Amathes c-nigrum* L., *Agrochola lota* C. and five *Plusia gamma* L. (when I left Gloucestershire my M.V. trap was bringing in over a hundred *gamma* a night).

There were virtually no butterflies in spite of the sunshine and I only saw four altogether — 2 *Colias croceus* Fourc., 1 *Pyrameis atalanta* L. and 1 *Pararge aegeria* L. No sign of *plexippus*; I understood it was on St. Agnes and had been sighted five times.

## Notes on the Distribution of Some Dragonfly Species (Odonata, Anisoptera) of Bengal

By TRIDIB RANJAN MITRA AND A. R. LAHIRI  
(Entomology Laboratory, Dept. of Zoology, Calcutta University)

The present note is based on a collection of specimens collected from different parts of Calcutta by the authors and some of their friends from 1966 to 1972. Sixteen examples belonging to five species spread in five genera were collected. Though all the species are known to have wide geographical distribution, it was considered worth-while to publish a short note on this material since it contains four species newly recorded from Bengal (W. Bengal in Union of India and Bangladesh) and one needs some remarks on its distribution in Bengal.

All the species recorded here belong to two superfamilies, spread in three families. Four are Old World species and the other is known from both Old and New Worlds.

Superfamily: Aeshnoidea.

Family: Aeshnidae.

1. *Hemianax ephippiger* (Burmeister)

1♀, 30th June 1966, Calcutta (at dusk), Coll. G. C. Sarkar.

This is the first record of its distribution in Northeast India. It is also recorded from other parts of India. Besides India, it is also recorded from Pakistan, Persia, Baluchistan, Mesopotamia, Africa, N. Asia and S. Europe. Blackman and Pinhey (1967) also reported its capture at dusk.



2 *Anax imperator* Leach.

1♀, 5th February 1972. Calcutta, Coll. R. N. Tiwari.

It is the first report of its existence in Eastern India. This is also recorded from the Himalayas and North West parts of India. Its extra-Indian distribution extends "from the British Isles across Europe to Central Asia and southwards to central and North Africa". (Fraser, 1936).

Superfamily: Libelluloidea.

Family: Libellulidae.

3. *Tholymis tillarga* (Fabricius).

1♀, 16th October 1966, Calcutta, Coll. T. R. Mitra.

This is the first record of its distribution in Northeast India. It is recorded from Southern and Western India. This is a common species throughout Southern Asia, Oceania, westwards to Africa, Madagascar and neighbouring islands and Australia.

4. *Orthetrum sabina* (Drury).

8♂♂, 3♀♀, 22nd September 1966 to 16th July 1967, Calcutta, Coll. A. R. Lahiri and T. R. Mitra.

This is the first record of this species from Bengal. The species is recorded from almost all parts of India. It is also reported from Nepal, Somaliland, Mesopotamia and Persia to Samoa and Australia.

Family: Macrodiplactidae.

*Macrodiplax Cora* (Brauer).

1♂, 4th October 1966, 1♀, 23rd July 1967, Calcutta, Coll. A. R. Lahiri and T. R. Mitra.

Calcutta is the only recorded locality of its existence in North India. Laidlaw (1915) reported the species from Calcutta on the basis of larvae. Fraser (1936) for an unknown reason did not pinpoint either Calcutta or Bengal as locality of its existence. However, the find of adults of both sexes for the first time confirms its existence in Bengal as well as in North India.

This is also recorded "from the east coast of Africa to Oceania and Australia and throughout Southern Asia" (Fraser, 1936). Borror (1945) reported it from North America.

The authors are thankful to Prof. D. N. Ganguly, Head of the Dept. of Zoology, Calcutta University, for facilities, to Dr D. N. Ray Chaudhuri of the same department for guidance and to Dr D. E. Kimmins, formerly in the British Museum (Nat. Hist.), London, for verifications of some of our identifications.

## References

- Laidlaw, F. (1915). Odonata. *Mem. Indian Mus.*, 5: 178-180.  
 Fraser, F. C. (1936). Fauna of British India. Odonata, Vol. 3., Taylor & Francis Ltd., London.  
 Borror, D. J. (1945). A Key to the New World genera of Libellulidae (Odonata). *Ann. Ent. Soc. Amer.*, 38(2): 168-194.  
 Blackman, R. A. A. and Pinhey, E. C. G. (1967). Odonata of the Seychelles and other Indian Ocean island groups, based primarily on the Bristol University expedition 1964-65. *Arnoldia* 3(12): 1-33.



## Notes on some of the British Nepticulidae II

By A. M. EMMET

(continued from Volume 85, p. 283)

*microtheriella**floslactella*

Egg. Underside, beside a rib.

Underside, not always beside a rib.

Mine. Starts as a narrow gallery with a thin central line of frass usually filling less than half the gallery except in occasional cloudy patches. In the second half of the mine the frass is more dispersed and irregular usually filling two-thirds of the gallery. The course of the gallery tends to be straight and angular, following ribs, especially on hornbeam. It is not broader than the width of the larva except in the final chamber. The exit-hole may be on either side of the leaf.

Starts as a narrow gallery almost completely filled with frass. In the second half of the mine the frass is in irregular arcs, almost filling the mine till near the end, where it is concentrated in the centre of the gallery. The gallery is more contorted, seldom following the ribs, and is broader than the width of the larva. The exit hole is on the upper side of the leaf.

Larva. Mines venter upwards. Yellow with dorsal vessel conspicuously green. Head, cephalic ganglia and a rectangular plate on the first thoracic segment light brown. No dark ventral spots.

Mines venter downwards. Dull yellow with the dorsal vessel less conspicuously green. Head and thoracic plate brown, slightly darker than in *microtheriella*; the thoracic plate is also smaller with concave sides. A chain of dark ventral spots obscurely visible from the underside of the leaf.

Cocoon. Small and pink.

Larger, cream-coloured and fluffy with loose strands of silk.

I find the width (not length) of the gallery the easiest mark of distinction.

An interesting point about *microtheriella* is that it appears to be mainly or entirely parthenogenetic. It is an easy species to rear and long series are readily obtainable but these will all be females.

Beirne, however, depicts male genitalia for *microtheriella*. He failed to find male specimens in the collections from which he drew most of his material, but eventually did so in the Temple collection, now incorporated in the Fletcher collection at the British Museum (Natural History). I have examined the specimen, which is in poor condition, and, as far as I can make out, it is correctly determined. Nevertheless, it is suspect since it lacks data and there is nothing to indicate whether it is a bred specimen or was captured as an adult.

Beirne writes of *microtheriella* (1945, pp. 203-204) "This species and *plagicolella* are closely related to each other . . . . The larvae of the two species are similar in appearance" [nonsense], "live on the same foodplant (*Corylus*)" [nonsense] "and form the same type of mines" [nonsense]. Such ignorance of the most elementary facts about this common species of Nepticulidae impugns the validity of all Beirne's work: as I have said, he did not know his neps.

To return to the problems of *microtheriella*'s parthenogeneticism, we must suspend judgement. Breeders should be on the lookout for males. If obtained, they should be recorded and dissected in order that Beirne's figure may be checked.

#### CRATAEGUS (Hawthorn)

(1) *Stigmella paradoxa* Frey (*nitidella* Heinemann). There are new county records as follows:—Hertfordshire, Hatfield Park, vacated mines in 1971 (Mr E. S. Bradford and A. M. E.); Oxfordshire, Watlington, vacated mines in 1971 (Bradford) and 1972 (A. M. E.); Somerset, Leigh Woods near Bristol, vacated mines (A. M. E.); Cumberland, Threlkeld, tenanted and vacated mines on the 10th August, 1972 (A. M. E.). August is a very late date for the larvae, and it may be that *paradoxa* is a later insect in the north. Hering (1957) describes the moth as uncommon on the continent, and the same is true in Britain, though it seems to occur in widely separated colonies. The southern half of Cambridgeshire appears to be its headquarters, and I continue to find it there in new localities such as the Gog Magog Hills and Dernford Fen; however, I have not yet taken it in Essex, my home county. In 1971, *paradoxa* was scarce, but it had recovered in 1972.

Readers may remember that I had found evidence for *paradoxa*'s long-established presence in Britain in the form of a mine in the Stainton herbarium (*Ent. Record* 83: 168). Now I have discovered an old specimen. It is amongst a group of unidentified neps in the Bankes collection at the British Museum (Natural History) and carries data "Corfe [Dorset], Hawthorn, 17.iv.86".

(2) *Stigmella crataegella* Klimesch. At last I have succeeded in breeding a series of this very common moth. It is difficult to rear and even the skilful Professor Waters failed to get it through. It is hard to say which of the earlier entomologists were successful with it because of the confusion between it

and *hybnerella* Hübner (*gratiosella* Stainton) which I discussed at length in my previous notes (*Ent. Record* **83**: 138-142, 163-171). The essential tip came from Wood, who describes the pupa as subterranean (see Tutt 1899, p. 256). It may be helpful if I describe my method. I partially filled a six-inch flower-pot with earth, over which I placed a two-inch layer of damp sphagnum moss. On top of this I laid the mined leaves. To prevent desiccation while the larvae were feeding, I tied a sheet of polythene over the pot. As soon as each leaf was vacated, I removed it, and when all the larvae had gone down I substituted a piece of nylon stocking for the non-porous nylon. The pot stood out of doors in a sheltered spot throughout the winter. To reduce the influx of rain-water, which might be accentuated by the funnel shape of the pot, I covered half the top with polythene. I did not bring it indoors until the 13th of May, which was cutting things fine, as the first moth emerged two days later. Twelve moths emerged between the 15th and 25th of May, representing a high proportion of the original stock. I use this method with most of the difficult univoltine species with a fair degree of success: at any rate I reared nearly fifty different species of nep in 1972. With the easier species, sphagnum moss in a jam-jar is good enough. I cannot recommend letting the larvae spin up in tissue which is advocated by some writers.

So far I have been unable to detect any reliable difference in superficial appearance between the imagines of *crataegella* and *hybnerella*. Wood (1894) says that *crataegella* is smaller and has the apical area violet rather than purple but these differences are relative rather than absolute. Mr Bradford has "done the tail" of one of my specimens and reports that the genitalia come close to *oxyacanthella*, the species it resembles most closely in its biology.

(3) *Nepticula ignobilella* Stainton. *Nepticula ignobilella* is dead. No tears will be shed over its demise, for almost from the cradle it has been a source of trouble. As early as 1879 Threlfall suggested (rightly) that it was no more than a sexual form of *gratiosella* Stainton (now *hybnerella* Hübner). Wood (1894) concurred and the subsequent tangled history of the relationship between *hybnerella*, *ignobilella* and *crataegella* Klimesch was set out at length in my previous notes (*Ent. Record* **83**: 142, 163-171). Continental entomologists came more and more to regard it as a chimera, referring to it as "*ignobilella* Stainton sensu Beirne" since the obstacle to its reduction to synonymy was Beirne's drawing of its genitalia which he showed as quite distinct from *hybnerella*. In fact, he put *ignobilella* in the genus *Nepticula*, while *hybnerella* was in the genus *Stigmella*. Clearly it was necessary to locate the specimen or specimens described by Beirne and assess their authenticity.

Beirne writes (p. 196) "Where possible at least two preparations, from different collections, of the genitalia of each species were examined. The majority of the preparations



have been deposited at the Department of Entomology, British Museum (Natural History), while the remainder are in the University Museum, Oxford". Having drawn blank at South Kensington, I duly visited the Hope Department of Entomology at Oxford with the kind permission of Professor Varley. There I found that Beirne had dissected two specimens labelled *ignobilella* which had been captured (not bred) at Oxford by Professor Waters on the 27th of July 1925. One of these is a female and the associated slide has deteriorated through crystallisation to such an extent that no genitalia are now visible. This is immaterial, since Beirne figured the male genitalia only and made no use of this preparation. There is no reason to think that the moth is anything other than a red-headed female *hybnerella*.

The other specimen is a male. As soon as I looked at it under the microscope it was obvious that it was *marginicolella* Stainton. The head is black (*ignobilella* should have a red head), the hindwings are clothed in the characteristic androconial scales (no androconial scales have been attributed to *ignobilella*), and the wing pattern, though the moth is rather rubbed, is typical of *marginicolella*. It was only after I had made this identification that I consulted Beirne (p. 203) and read, "A somewhat distinct species, but perhaps nearest to *marginicolella*." Nearer indeed than Beirne had realised! Next I examined the genitalia slide. This too has deteriorated, but not as disastrously as that of the female specimen. The aedoeagus has vanished but the rest of the genitalia are still decipherable. When viewed today, the genitalia more closely resemble the drawing Beirne made for *marginicolella* than his figure of *ignobilella*.

Waters's mistaken determination was quite uncharacteristic. One can picture him capturing two similar-looking moths at the same place and on the same day and, being pressed for time, assuming they were the same species without subjecting them to much scrutiny.

Beirne wrote (p. 191), "... in many species of *Stigmellidae* the females appear to outnumber the males . . . ." We now believe that *ignobilella* is a name given to the red-headed form of the female of *hybnerella*. So we can imagine Beirne searching through series of *ignobilella* in collections and finding nothing but females. Then at last he found a male determined by the reliable Waters. To ease his conscience and justify his claim that wherever possible two preparations had been made for each species, he also dissected the female captured on the same day—the only female he dissected at Oxford. Later Beirne writes, "Considerable difficulty was found in obtaining reliably identified specimens of some species, as many specimens in some of the collections examined were found to be incorrectly identified". Bear in mind that Beirne had next to no field knowledge of the *Nepticulidae* or familiarity with the imagines and you see what he was up against. We need not be too harsh with him, though his mistake has



caused a lot of trouble.

It remained to examine Stainton's original material at the British Museum which I was able to do with the permission and valuable help of Dr K. Sattler. A specimen designated as the type has Stainton's data label, "20.x.52—yellow larva—hawthorn—Lewisham". Dr Sattler pointed out that as the moth was already described in 1849, this moth bred in 1852 is not the specimen from which the original description was made. It cannot therefore be properly regarded as the type specimen. It is a red-headed female and its outward appearance is consistent with that of *hybnerella*. The same is true of the other Staintonian specimens of *ignobilella* in the museum.

The earliest known description is in Stainton's *Catalogue of the Tineina*, 1849, p. 29, but even this poses a slight problem. In that work, with new species named and described for the first time, the specific name is followed by the abbreviation "sp. nov.", but in the case of *ignobilella* it is followed by the author's name "Sta.". This implies that Stainton had already described *ignobilella* elsewhere, but if this is so, the reference is lost.

The description itself is interesting: "Much less brilliant than *N. aurella*. Basal portion of the wing brownish; apex violet; fascia placed as in *aurella*, whitish, not silvery; head of the ♂ black; of the ♀ ferruginous". In his subsequent descriptions (*Insecta Britannica* (1854) pp. 302-303; *Natural History of the Tineina* (1855) I. 250 and plate VII), Stainton describes the head and face as "reddish yellow" without any distinction of sex. In this he was followed by Tutt (1899) and Meyrick (1928), who give *ignobilella* as an entirely red-headed species.

So it came about through Stainton's change of mind, that we attributed two species, one red-headed and the other black-headed, to the British list. When it became known that there were, in fact, two black-headed species feeding on hawthorn which were indistinguishable in the imago, but quite different in biology, we supposed we had three. Now we are back again to two, having married the red-headed lady to one of the black-headed gentlemen. I hope they will live happily together ever afterwards.

#### PRUNUS (Blackthorn)

*Exttoedemia spinosella* Joannis is like a much-married film star. Née *Nepticula*, she had already changed her name to *Stigmella* when she first appeared in this country (Emmet 1970). Only a year later we meet her again as *Dechtiria* (Emmet 1971). At the moment she is styled *Ectoedemia*, but the sinister Sir Jaspar has designs on her: if he has his evil way she will soon be *Trifurcula* (Johansson 1971). All in the space of three years — tut, tut! But she is rather a sweetie, and as the result of exclusive interviews I can now tell the full story of her childhood and adult charms.

*Ovum.* Laid on the underside of a leaf of blackthorn (*Prunus spinosa* Linn.), generally close to a rib, but sometimes at the margin of the leaf.

*Larva.* Transparent pale greenish white with a thin dark brown ventral stripe, broadened in the centre of each segment and more conspicuous in young larvae. Head, cephalic ganglia and anal plate light brown. The larva mines venter upwards.

*Mine.* There are three stages. (a) A gallery completely filled with frass which is so contorted as to form a tiny blotch. (b) An irregular gallery with the frass forming a central line, leaving clear margins. (c) A clear blotch with the frass tending to be concentrated in a mass at the mouth of the phase (b) gallery. The whole mine is small and compact with the blotch often enveloping stages (a) and (b). The larval exit hole is on the upperside of the leaf.

*Cocoon.* Light pinkish brown and relatively smooth. In captivity the larvae spun their cocoons in a number of situations, but moths emerged only from those spun in moss.

*Imago.* Expanse 3-4 mm. Head and collar orange to fuscous-orange. Antennae  $\frac{1}{2}$  wing, fuscous; eyecaps cream. Forewings light grey, heavily overlaid with rather glossy dark purplish fuscous scales, so as to make the wing appear that colour; a central, direct, silvery white fascia, with its inner edge concave, its outer edge straight; cilia light yellowish grey, the inner half overlaid with coarse, dark fuscous scales. Hindwings light grey, rather coarsely scaled; cilia slightly darker, especially terminally.

The imago closely resembles that of *Ectoedemia agrimoniae* Frey, but is significantly smaller; in fact *spinoseella* is the smallest of the British *Ectoedemia*. This species, like all the British members of its genus, is univoltine. Larvae occur from late July to early October, with August as the month in which they are most plentiful. Six moths emerged in captivity from 5-11 June, 1971 and one on 2 June 1972.

*Distribution* Devon (Torquay) where it was first found in 1939; Essex (Benfleet 1969-1972, Fingringhoe 1971); Suffolk (Thorncroft 1972).

*Location of specimens.* Of the seven specimens so far reared (in Britain, one is in the British Museum (Natural History), five are in my collection, and one escaped).

#### QUERCUS spp. (Oak)

The notes which cover this foodplant introduce three new species to the British list, correct mistaken tradition about another and supersede much of what has hitherto been written concerning our oak-feeding Nepticulidae. I shall therefore divide my rather lengthy notes into two sections, corresponding to the main divisions of the family.

##### A. *Stigmella* (Nepticula)

In my previous notes on the oak-feeding Nepticulidae (*Ent. Record*, **83**: 245), I spoke of the work being done by continental entomologists led by Johansson in Sweden and Borowski in Poland. An important paper, written in English,

(to be continued)

## Gargia, Finnmark, July 1973

By M. J. PERCEVAL

(Holmesdale Cottage, North Holmwood, Dorking, Surrey)

The following notes on a visit to northern Norway in July 1973 may be of interest, especially as they appear to extend the known range of certain species and also as there is little on record concerning the butterflies of this area in English entomological literature. From the 14th to the 22nd of July I stayed at Gargia, some 15 miles south of Alta in Finnmark, where I joined two Danish entomologists who were making a rather longer visit to the area. My observations make an interesting comparison with Mr Mark Shaw's report of his visit to the same area from 4th to 12th July 1971 (1). The quite substantial differences in our respective experiences serve to underline the effects of weather conditions and the very short season at this latitude, 69 deg, well inside the Arctic Circle.

The habitat falls basically into three parts. To the north of Gargia is the lower wooded and partially farmed land of the Alta river valley, while to the south the land rises steeply to the higher upland plateau above the tree line which comprises most of this region. Thirdly there are the areas of marshland, both above and below the tree line. The tree line is at only about 400 m. and in sheltered dips and hollows above this height snow lies throughout the year. Despite this, on occasion, it can be very hot. I was fortunate as the weather was excellent during my stay, on the last three days the temperature was up in the 80's, nonstop sunshine for 24 hours a day.

The best areas for butterflies below the tree line proved to be the open woodland and the marshy areas. Butterflies above the tree line were generally much less numerous. The high ground above the trees is ridged and undulating with occasional mountains rising to 600 m. or more. It was these mountains which provided the best areas for those species found above the trees. I visited two such mountains, Gronnasen just south of Gargia and Bjornhaugene some five miles further south. While a number of species could be found on both, the intervening lower ground produced not a single specimen.

In all I encountered the following 27 species. The most well represented family were the Nymphalidae with 11 species all but one of which were Argynninae.

*Papilio machaon lapponicus* Vty. In all some 20 were seen. Their condition ranged from fresh to very worn. All were seen above the tree line, with the largest single concentration when about eight were found flying right at the summit of Gronnasen on one of the few wind free days.

*Leptidea sinapis* L. About a dozen found in woodland some three miles north of Gargia. No previous records of this species from Finnmark appear to exist, although both Nordstrom (3) and Higgins and Riley (2) show it as reaching this latitude further east.



*Pieris napi adalwinda* Frhst. Common at lower levels round Gargia. Most of the specimens seen were past their best.

*Colias hecla sulitelma* Aur. Common on high ground above the trees on Gronnasen and Bjornhaugene with the odd one seen at lower levels. Very fresh when I arrived but mostly worn a week later.

*C. palaeno* L. Widespread throughout the area. Not so numerous as *C. hecla* above the tree line but much more common at lower levels.

*Boloria napaea* Hffmsg. One male taken on Bjornhaugene and a small colony found in one locality on Gronnasen. Ssp. *frigida* Warren from this area is described as small, however those I found are large, I would think above average.

*B. aquilonaris* Stichel. Much more numerous and widespread than *B. napaea*. Found in the same locality but generally more common below the tree line especially in marshland although not exclusively so.

*Proclossiana eunomia* Esp. Widespread below the tree line but not common. I was too late for this species. All those I found were female and past their best. I suspect it was more numerous a couple of weeks earlier.

*Clossiana euphrosyne septentrionalis* Nordstrom. Almost over. A few mainly worn specimens still on the wing.

*C. selene hela* Staudinger. Very common and fresh. Found well above the tree line but mainly at lower levels. By far the most common fritillary below the tree line. A substantial number of specimens were very dark with the black upperside markings suffused.

*C. freiga* Thunb. I was too late for this species, but found three worn females at high level.

*C. polaris* Bdv. The most uncommon of the fritillaries found. It seems to occur only at high level. I found one female at the top of Gronnasen and a few others were taken by the others, but mainly during the week before I arrived.

*C. chariclea* Scheven. The most numerous of the specifically northern species. Quite common at high level on Gronnasen and Bjornhaugene. Fresh when I arrived but very worn by the end of my stay.

*C. frigga* Thunb. Restricted to marshland mainly below the tree line. I was again too late for this species at its best. Those still on the wing were worn.

*C. thore borealis* Stdgr. Below tree line, common in shaded woodland areas. Some past their best but good specimens still about.

*Aglais urticae polaris* Stdgr. A couple in tatters seen when I arrived and a few newly emerged specimens appearing at the end of my stay. I also found three pupae and saw plenty of evidence of larval activity, one clump of nettles stripped bare. The main emergence probably occurred after I left.

*Oeneis norna* Thunb. This species was uncommon. I never took it but two were taken on Gronnasen by the others while I was there. Perhaps this was not a good year for this species.



*O. bore* Hb. Much more numerous than *O. norna*. Found in some numbers on the top of Gronnasen with other odd ones at lower levels but not below the tree line.

*Erebia polaris* Stdgr. Widespread, mainly below the tree line. Usually only found in ones and twos, nowhere numerous.

*E. pandrose* Borkh. Odd worn specimens at high level. Again I was too late.

*Lycaena phloea polaris* Courvoiser. Becoming quite numerous along the roadside verges at Gargia during the latter part of my stay.

*Palaeochrysophanus hippothoe* L. I took two males and one female, each in a different locality. It would seem to be widespread but uncommon. A further female was taken by Hr. Schluter. Ssp. *stiberi* Gerh. is supposed to come from this area, however the two females we took were not of the type illustrated by Higgins & Riley as *stiberi* but of a much darker type similar to those from the Alps, and thus in line the description given by Bretherton (4).

*Callophrys rubi borealis* Krul. Three worn specimens in woodland at Gargia.

*Lyaeides idas lapponica* Gerh. The most numerous species encountered, very common and fresh throughout my visit. It must not emerge however, until mid July because, despite its abundance during my stay, Mr Shaw does not record seeing it. It was most numerous on open ground and on roadside verges, and not generally extending above the tree line.

*Vacciniina optilete* Knoch. Common, but not so numerous as *L. idas*. Also emerges earlier as there was a higher proportion of worn specimens.

*Cyaniris semiargus* Rott. One female taken at Gargia on 18th July. Not apparently previously recorded from Finnmark, in fact this would seem to extend the known range of this species quite substantially further northward.

*Polyommatus icarus* Rott. One fresh male taken on 22nd July, my last day. It may have been the first to emerge of the single brood in the far north.

While the above species are those actually observed during my visit, I am aware of certain others also recorded from this locality which it might be helpful to mention here to complete the picture. Mr Shaw (1) took a single *Colias nastes werdandi* Zett. in 1971, the only one I know of from the area. He also found *Erebia disa* Thngb. I think I was too late for this in 1973. Hr. Schluter and his family on earlier visits have also found *Lycaena helle* Schiff. and *Hesperia comma catena* Stdgr. On one occasion they found *Euphydryas iduna* Dalman, although on subsequent visits it has not been found again as far as I know. I have recently heard from Mr Shaw that two Norwegian entomologists Messrs. Luhr and Lund took *Lasiomata petropolitana* F. and *Anthocharis cardamines* L. at the end of June, a couple of weeks before I arrived. The latter is another species not previously known to occur so far north.

The summers in northern Norway during the last few years

seem to have been better than average and this has undoubtedly contributed to a buildup of the butterfly population. It is interesting to speculate whether those species not previously recorded so far north are in fact extending their ranges or if they have been there all the time but at such very low population densities that they have not previously been noticed. The latter seems more likely in some cases.

I appreciated before I went that I was probably going one or two weeks too late for the best of the season and I think this probably proved to be the case, especially as far as the specifically northern species were concerned. However, business commitments precluded an earlier visit and mine still proved very successful.

Finally I would like to record my thanks to Mr Mogens Schluter who made the trip possible by inviting me to join his party at Gargia. His intimate and detailed knowledge of the area and its butterflies ensured that my trip was so successful and so enjoyable.

#### References

- (1). Shaw, M. R., *Entomologist's Record*, 1971, **83**, 371.
- (2). Higgins, L. G., & Riley, N. D. *A Field Guide to the Butterflies of Britain and Europe*, London 1970.
- (3). Nordstrom, F. *De Fennoscandiska Dagfjarilarnas Utbredning*, Lund, 1955.
- (4). Bretherton, R. F. A Distribution List of the Butterflies (Rhopalocera) of Western and Southern Europe, 1966 *Trans. Soc. Br. Ent.*, **17**, 54.

## Warwickshire and Elsewhere, 1973

By DAVID BROWN  
(Charlecote, near Warwick)

January opened with fairly mild weather and, having brushed the dust off my moth trap, I operated it here in the garden on 3rd January. Two *Conistra vaccinii* L. and a single *Erannis defoliaria* Clerck were the only visitors. Towards the end of the month came colder weather with snow on the 20th for the first time this winter at Charlecote.

I had my first outing of the year on the mild evening of 20th February, where in Kings Wood on the Bucks-Beds border the blacklight attracted 35 *Erannis leucophaearia* Schiff., one *E. marginaria* Fab., one *Apocheima hispidaria* Schiff., 5 *Phigalia pilosaria* Schiff. and 2 *Alsophila aescularia* Schiff.

My next trip was to a local Warwickshire wood on the 31st March where I operated two lights off my newly acquired generator. It was a rather cool and windy night and amongst a haul of the usual common *Orthosias* was a very fresh male *Trichopteryx polycommata* Schiff. Light at this same wood on the 7th April failed to produce *polycommata* but did result in a dozen species of macro amongst which *Orthosia populeti* Fab. was very abundant.

On 10th April, I set out north on a long journey to the

Scottish Highlands, and after breaking my journey at Ripon in Yorkshire for one night arrived at Kincaig shortly after 6.00 p.m. on the 11th. I ran an m.v. trap there that evening in the grounds of the hotel. Although an overcast sky, the moon was bright and it was rather cool and windy, and the following morning a crisp and thin layer of snow covered the ground. Nevertheless I was delighted to find 3 mint *Brachionycha nubeculosa* Esp. amongst the egg trays. In accordance with custom I searched the posts at Straun later in the morning. These failed to produce *Poecilopsis lapponaria scotia* Harr., but females of *E. marginaria* and three specimens of the lovely Scottish *Achlya flavicornis scotica* Tutt were found. By evening the cool north easterly wind had completely dropped and conditions were good. The m.v. trap at Kincaig produced a further 3 *nubeculosa* all again in excellent condition, together with 2 *Xylena vetusta* Hübn. and the usual spring species. Another m.v. light and actinic tube in the woods at Aviemore did not produce anything new.

Conditions on the 13th were even better being a very mild and still night with a light drizzle of rain. Shaking sallows near the lake at Kincaig produced a further 4 *vetusta*, all females, from which I obtained a fine series later in the year. *Orthosia incerta* Hufn. and *O. gothica* L. descended onto the sheets in hundreds and in great variety. Two *C. vaccinii*, many *Orthosia stabilis* Schiff., and a single *Panolis flammea* Schiff. were also shaken down. The moth trap again produced 3 *nubeculosa* together with some attractive Scottish forms of *O. populeti*, also 30 *flavicornis* with many attractive varieties, 20 *Colostygia multistrigaria* Haw., mostly worn, and a freshly emerged *Lycia hirtaria* Clerck.

After breakfast on the 14th I travelled over to Straun to go through the ritual of checking the posts. Three hours hard searching at last produced *lapponaria*—a solitary male in very fresh condition. In addition I found an early *Cleora cinctaria bowesi* Rich., a few *flavicornis*, one *Tricopteryx carpinata* Borkh. and again several female *marginaria*. That evening sallowing at Kincaig brought forth a further three *vetusta* and another *flammea*. The moth trap produced two more *nubeculosa*, still in fair condition, 3 *vetusta* and the previous night's species plus some lovely silvery-grey forms of *Cerastis rubricosa* Schiff.

I packed and left Kincaig on 15th April for my long journey back to Warwickshire but stopped, of course, at Straun to make a last visit to the posts! Once more they failed to produce for me *lapponaria*. The journey was broken at Carlisle and Chester and I eventually arrived home on the 17th April.

The day afterwards I had a rather unsuccessful expedition to the Wyre Forest in Worcestershire. The strong and blustery north east wind was little comfort to the moths. I ran one light from the generator in a sheltered ride of oak and birch but only common *Orthosias* braved the weather. Sallowing



also failed to produce my two quarries—*Orthosia opima* Hübn. and *O. miniosa* Schiff. In fact I was forced to abandon shaking sallows fairly early on as at each bush I was showered with hundreds of wood ants—which proved to be rather uncomfortable in my clothing.

This cold and windy weather continued throughout Easter and little collecting was undertaken, but immediately afterwards summer weather arrived which encouraged *Anthocharis cardamines* L. to emerge earlier than usual for this area. Also at this time of year it was a pleasant sight to see *Aglais urticae* L. and *Gonepteryx rhamni* L. in good numbers feeding on the colourful spring flower borders in the garden.

The Wyre Forest again saw me unsuccessful on the 27th April hoping for *miniosa* and *opima* despite having four m.v. lights at my disposal. After this trip the weather became unsettled again and catches in the garden trap were well below average for the first half of May.

During May I found it convenient to leave my Heath trap overnight in a wood at Bow Brickhill near Bletchley and collect it on my way to an early morning appointment. On one such morning I was a little later than usual and must have been observed by an early riser and my registration number reported. I learned later that throughout the day there was intense police activity in an effort to trace the suspicious looking character loading and unloading timing devices together with several bulky sacks! The evening of 25th May found me in local Ryton Wood (Princethorpe) with the generator. The sky had cleared by midnight to give cool conditions. Although very few moths appeared a single *Notodonta trepida* Esp. made the visit very worthwhile. An insect seldom met with in Warwickshire.

On the 26th May I explored a large disused quarry a few miles southeast of Leamington Spa and found *Cupido minimus* Fuessly extremely widespread and plentiful. As a local colony at Oakley Woods seems to have recently disappeared it is nice to know that this little butterfly still has a stronghold in the County.

I motored over to Salcey Forest in Northamptonshire on 27th May to witness a promising looking emergence of *Leptidea sinapis* L. All the examples seen were very fresh males. The sunny morning of 1st June found me on my favourite hillside near Cheltenham. *Aricia agestis* Schiff. seemed to be in greater evidence than in past years. *Pararge megera* L., *Coenonympha pamphilus* L., *A. urticae* L., *Callophrys rubi* L. and *Erynnis tages* L. were also flying. But once more *Hamearis lucina* L. failed to turn up in its very local hollow on the dry hillside.

On the evening of 6th June I tried m.v. light in the Brickhill Woods of N. Bucks., an area which seems to have been rather neglected by collectors and recorders. Although the sky was clear a steady flow of moths came to the light amongst which *Drymonia dodonaea* Schiff. and *Colocasia coryli* L. were



very plentiful before a full moon appeared at around 12.30 a.m.

The next day I visited Otmoor in hot sunshine. The recent fire which had swept across this open area had luckily not affected the colonies of *Euphydryas aurinia* Rott. which were very much in evidence. Near the village of Beckley I strolled through a huge flowered meadow where *Procris statice* L. was in great abundance. On the flowers in the very hot sunshine *Euclidimera mi* Clerck, *Ectypa glyphica* L. and *Panemeria tenebrata* Scop. were busily feeding.

I was in the Forest of Dean on 16th June to be rewarded by *Argynnis selene* Schiff. in widespread abundance. In one rough clearing bordered by a stream this insect was swarming—a marvellous sight. In this same clearing *Epirrhoe tristata* L. and *Rheumaptera hastata* L. were plentiful, together with *Lithacodia fasciana* L., *Cosymbia linearia* Hübn., *Euphyia unangulata* Haw., *Minoa murinata* Scop., and *Pseudopanthera macularia* L. Later in the afternoon I moved to the Wye Valley near Tintern where beating herbage resulted in a good series of *Abraxas sylvata* Scop. and *Discoloxia blomeri* Curtis. At dusk these species were even more plentiful when also a female *Cepphis advenaria* Hübn. was found feeding on aphid juice. I set up m.v. light in a sheltered pathway on the wooded valley slopes overlooking Tintern. A thick cloud cover approached at dusk to give near perfect conditions. Forty six species of macro visited the light up until 3.30 a.m. The more interesting species and estimated numbers were as follows:—4 *Stauropus fagi* L., one *Tethea duplaris* L., one *T. fluctuosa* Hübn., one *Cosymbia annulata* Schulze, 5 *C. linearia*, 5 *Mesoleuca albicillata* L., 6 *Melanthia procellata* Schiff., 2 *Hydrelia flammeolaria* Hufn., 400 *D. blomeri*, 100 *A. sylvata*, 15 *Bapta bimaculata* Fabr., 30 *Selenia lunaria* Schiff. and 26 *Ectropis extersaria* Hübn. Before leaving this fine locality later in the morning the first *Vanessa atalanta* L. of the year was sighted.

On 18th June I was in Buckinghamshire working two m.v. lights in Kings Wood where the best species were *D. dodonaea*, *Notodonta dromedarius* L., *N. trepida*, *Tethea ocellaris* L., *T. or* Schiff., *Hadena W-latinum* Hufn., *Apatele leporina* L., *Bena fagana* Fab., *H. flammeolaria*, *B. bimaculata*, *E. extersaria* and *Pseudoboarmia punctinalis* Scop.

It rained heavily during the following 48 hours and when I next visited this wood on the 21st the rides were very muddy and boggy. On this overcast, damp and windy night a good 71 species of Macro visited the two lights from dusk until 2.00 a.m. Additional species from my last visit were *S. fagi*, *Harpyia furcula* Clerck, *Lycophotia varia* de Vill., *Diarsia brunnea* Schiff., *Eumichtis adusta* Esp., *Apatele alni* L., *Dypterygia scabriuscula* L., *Lithosia complana* L., *Cosymbia punctaria* L., and *M. albicillata*. A third visit on the less favourable night of June 24th resulted in only 39 species but a melanic *S. fagi* made the effort worthwhile.

On 7th July I spent a weekend in the Wyre Forest. This expedition was memorable for its exceptionally cold and clear nights. On the 7th I tried one m.v. in the forest but nothing stirred, which was hardly surprising as by midnight the temperature was as low as 40°F and still falling! The next night was not much warmer and *D. scabriuscula* was the only bug worth keeping. However, the days were sunny and it was lovely to see both *Argynnis adippe* Schiff. and *A. paphia* L. so plentiful.

Again in Kings Wood (Bucks) on July 10th the lights produced 84 species of macro up until my departure at 2.30 a.m. It was a warm and overcast night and shortly after dusk moths were swarming around the traps, however it was more a night of quantity than quality, and the only species worthy of a mention are, *T. or.*, *Amathes ditrapezium* Schiff., *Xanthorhoe quadrifasiata* Clerck and *Euphyia unangulata* Haw. I was surprised by the lateness of *D. dodonaea* which had finished flying many weeks earlier in Warwickshire.

M.V. in damp woodland at local Hasely Knob on July 14th attracted 53 species including *Apamea scolopacina* Esp., *E. unangulata*, *Plemyria rubiginata* Schiff., and *Euchoeca nebulata* Scop. A surprise at Charlecote was *Mitochrista miniata* Forst. on the 16th.

Some of the heaviest rain of the Summer fell on St Swithens day and as superstition will have it, the rain will fall for the following 40 days. There must be something in this tale as it did, in the event, turn out to be a very wet and cool July. Nevertheless I set off on an expedition to the Breck District, arriving on the afternoon of the 17th. I scanned the area around Brandon for a suitable place for night operations. I found a good site near the village of Weeting. Later in the evening I operated 2 m.v. lights, one in deciduous woodland and the other on the edge of a corn field bordered with ancient pines. There was a steady fall of rain from the thickly overcast sky. Insects came to the lights immediately. *L. complana* was very common at the corn field light but not in the wood. Other species of interest were, *Hyloicus pinastri* L., *Agrotis vestigialis* Hufn., *Euphyia cuculata* Hufn., and *Perizoma bifaciata* Haw. Another m.v. trap was left running in some marshy ground near Fen Gate farm, this had produced *A. vestigialis*, *D. scabriuscula*, *Apamea ophiogramma* Esp., *Thumatha senex* Hübn. and *Cybosia mesomella* L.

On the following night at this same location *Euxoa tritici* L., *Spaelotis ravidata* Schiff. and *Simyra venosa* Borkh. were recorded. During a brief break in the morning cloud *Thymelicus lineola* Ochs. was also flying on this marshy ground. On the 19th I moved from these quarters and travelled further East to Dunwich on the Suffolk Coast. M.V. lights in the salt marshes that evening produced *Sphinx ligustri* L., *A. vestigialis*, *Hadena sarsa* Schiff., *Arenostola elymi* Treit., *A. brevislinea* Fenn., *A. phragmitidis* Hübn., *Chilodes maritima* Tausch. and *T. senex*. While a heath trap placed well in the reeds re-

sulted in only two moths—*Apamea oblonga* Haw and *Nonagria neurica* Hübn.! The next night I endured heavy rain throughout but as the moths were coming in undeterred I continued operations until shortly after midnight. Additional species to the previous night were, *Lophopteryx cucullina* Schiff. and *Leucania straminea* Treit.

On the 21st I was surprised to see hundreds of Tilley lamps twinkling along the beach in either direction as far as the eye could see. I was told that this was an organised fishing contest from Southend. About midnight I wandered over to them and from my observations my haul of moths was proving considerably more prolific than the fish they were landing.

Back home on the 24th July, Bernard Skinner travelled up from London to try for *R. simulans* and *S. ravida* at Oakley Wood. Despite 4 M.V. lights and 2 blacklights dotted about the wood only one *ravida* obliged. However 74 species of macro appeared including *parastichtis suspecta* Hübn. which I had not previously met with in this locality. The following night I tried some reed beds near Henley-in-Arden and was rewarded with the first *L. straminea* to be taken in Warwickshire.

On 30th July I travelled down to Devon for an expedition which turned out to be unprolific. This first night proved to be the only worthwhile one of the stay. I operated lights at Woody Bay near Lynton for *Alcis jubata* Thunb. and was rewarded with two specimens, both at the actinic lights, together with 4 *Venusia cambrica* Curtis and *Lygris prunata* L. The following night brought no further *jubata*. On my journey back to Ilfracombe my car broke down and I had to walk 10 miles along the lonely coast road in thick sea mist during the early morning hours! It seemed from this moment on I was doomed, for the weather changed from bad to worse. Due to extremely strong winds at Welcombe Mouth on the 3rd August which only *Agrotis trux* Hübn. and *Lasiocampa quercus* L. braved, I had to abandon my quest for *Leucania putrescens* Hübn. Strong gales each night made collecting impossible and my patience broke on 4th August with one of the worst gales I could ever recall. I returned home in disgust early the following morning! Indeed, the weather was so bad that I spent the next week indoors repapering one of my cabinets! I was, however, recompensed to some extent by the emergence of a grand series of *X. vetusta* from Aviemore parents.

On 8th August, Messrs Rogers and Sadler came up to try for *Cosmia diffinis* L. On this occasion they had to be content with one each but had better luck a week later when they hit the main emergence period. I set off for Swanage on the afternoon of August 13th and stopped that evening at West Lavington in Wiltshire. M.V. at this locality found *C. diffinis* to be very common. I was very amused to think of all the visits paid by Southern collectors to Warwickshire for this insect, when, in fact, here it was almost on their own doorstep. Also plentiful was *Eremobia ochroleuca* Schiff., another moth which is



reported to be uncommon in Wiltshire. The following evening I worked the M.V. lights at Shell Bay near Studland. *E. tritici*, *Euxoa oboeisca* Schiff., *A. vestigialis*, *Actebia praecox* L., *Anarta myrtilli* L., *Leucania litoralis* Curt., *Nonagria geminipuncta* Haw. and *Lasiocampa trifolii* Schiff. were all plentiful, despite the bright moon. Notable Geometers were *Scopula conjugata* Borkh. and *Pachynemias hippocastanaria* Hübn. The next evening the generator packed up due to some sand in it, but having removed this it functioned perfectly on the 16th. Surprisingly, *Nonagria sparganii* Esp. was very plentiful in the salt marshes together with *N. typhae* Thunb., *Plusia festucae* L., *H. suasa*, *C. maritima*, and *Orthonama lignata* Hübn. The actinic traps placed among sallow bushes nearer the sand dunes had obliged with *Cosymbia pendularia* Clerck. On the 17th the only additional species were *Hydraecia paludis* Tutt and *Arenostola pygmaea* Haw. Whilst sitting in my car indulging in a snack supper at the Ferry Bus Terminus, I noticed a waiting bus with several passengers on board. Without apparent reason the lights on the bus were switched off and the passengers sat in darkness for a few minutes while the driver and a male passenger stepped out of the bus and peered curiously in the direction of my M.V. lights, situated a few hundred yards away on the sandhills and in the salt marsh. The driver then leaned inside the bus door and announced to one of his passengers, "No, it isn't one of those Pop Festivals, it's only some people having a picnic, they've got one of those Aladdin Lamps"! The driver having satisfied his passengers (and himself) got into his cab and happily drove away. How I wished the "Aladdin Lamp" could have magically produced a few Bedstraw Hawkmoths!

On 20th August I was in the New Forest at Parkhill where that evening *H. pinastri*, *Amathes castanea* Esp., and *Lampropteryx otregiata* Metcalfe visited the lights. A long sugar round proved very unproductive.

Back home on the 25th August Brian Elliot and John Culpin came down from Chesterfield to try for *C. diffinis*. After a few hours at the usual position near Walton they were able to return home satisfied with females of *S. ravida*, *Cosmia affinis* L. and indeed *diffinis*.

The highlight of my collecting year was left until this time for on the 26th August in the garden trap I captured *Hypena obesalis* Treit. (*Ent. Rec.*, 85: 240).

Shortly after this excitement I spent a few days in Cambridgeshire. The nights were far too clear and cold for collecting in the Fens but a static M.V. trap at Swaffham Prior produced *Lampra fimbriata* Schreber, *Discestra trifolii* Hufn., *Gortyna flavago* Schiff., *Lyncometra ocellata* L., *Anaitis plagiata* L. and *Deuteronomus fuscantaria* Steph.

Mild weather at the end of October resulted in high catches in the garden trap. *Chesias legatella* Schiff. on the 31st was a new species for Charlecote. Eighteen species of macros visited the trap on the night of 1st November including *Agrotis sege-*



tum Schiff., *A. ipsilon* Hufn., *Amathes c-nigrum* L., *Agrochola macilenta* Hubn., *Gortyna micacea* Esp., and *Plusia gamma* L.

I had hoped to complete my series of *Ptilophora plumigera* Schiff. with visits to the Chilterns, but with the advent of cold weather as November progressed I had to abandon such hopes.

## Systematic Position of the Genus *Homotages* Burr and Nomenclatural Status of *Anechura* *zubovskii* Semenov (Dermaptera)

By V. C. KAPOOR

Department of Zoology,

College of Basic Sciences & Humanities,

Punjab Agricultural University, Ludhiana (India).

*Anechura fee* was described by Bormans as early as 1888 from India. The genus *Anechura* belongs to the Subfamily Anechurinae of the family Forficulidae. Later Burr (1909), erected a new genus *Homotages*, with *Anechura feae* as its type species in Anechurinae. *Homotages* is monotypic and known only from India. Burr (1916) corrected its systematic position when he studied its male genitalia. He, on the basis of the non-dilated, simple and elongate 2nd tarsal segment and typical labiine-type male genitalia, specially acuminate metaparameres, placed it in the family Labiidae. Popham (1965) placed it in subfamily Forficulinae of the family Forficulidae even though the genus has got typical Labiine characters. Because of the above mentioned characters it should be in the family Labiidae not Forficulidae.

*Anechura zubovskii* was first described by Semenov in 1901 and he differentiated it from *A. bipunctata* Fb., *A. b. orientalis* Krauss and *asiatica* Semenov. Burr (1910) regarded these above mentioned four taxa as the local races of *A. bipunctata* Fb. but at the same time preferred to continue the nomenclature of Semenov. Bey-Bienko (1936) lowered its status and placed it as sub. of *A. asiatica* Sem. Boeseman (1954) maintained its sub. sp. status but placed it under *A. bipunctata* (Fb.). Recently, the author received a collection of Dermaptera from Dr V. K. Gupta, Dept. of Zoology, Delhi University, Delhi who collected them from Hattu Peak, 4875 m, Narkanda (Simla) under stones. The collection contained only one male of *A. zubovskii* and the rest were of *A. nayarae* Kapoor. The male genitalia of *A. zubovskii* were studied and it was found that they totally agree with those of *A. bipunctata*. *A. zubovskii* can be easily differentiated from *A. bipunctata* only in external characters like dark head, light pale spots on elytra as compared to pale head and orange-red elytral spots in *A. bipunctata*. The present findings are sufficient enough to confirm its sub. sp. status under *Anechura bipunctata* Fb.

### ACKNOWLEDGEMENTS

I am grateful to Dr S. S. Guraya, Professor and Head,

Department of Zoology, Punjab Agricultural University, Ludhiana, for the facilities provided and to Dr V. K. Gupta, Department of Zoology, Delhi University, Delhi, for placing the collection at my disposal.

#### REFERENCES

- Bey-Bienko, G. J. (1936) Inseces Dermapteres de l' U.R.S.S. (In Russian with English Summary), New Series, **10**(5): 230-231.
- Boeseman, M. (1954). Dermaptera in the museum at Leiden and Amsterdam. *Rijk Natur. Hist.*, Leiden, **21**: 103.
- Bormans, A. de. (1888). Viaggio di Leonardo Fea in Birmania e regioni vicine, vii. Dermapteres. *Ann. Mus. Civ. Gen.*, **6** (2): 431.
- Burr, M. (1909). Notes on the classification of Dermaptera. *Dtch. Ent. Zesschr.* p. 327, pl. iv.
- . (1916) On male genital armature of the Dermaptera. Part III. Eudermaptrea. *J. Roy. Micr. Soc.*, p. 5, pl 1, fig. 9: pl 11 fig 15
- . (1910). Fn. of Brit. India. Dermaptera, p. 155-160.
- Popham, E. J. (1965). A key to Dermapteran Subfamilies. *Entomologist*, **98**: 135.
- Semenov, A. P. (1902). Russian species of the genera, *Anechura* Scudd. & *Forficula* (L.) and their geographical distributions (In Russian). *Horae Soc. Ent. Ross.*, **35**: 185.

#### NOMENCLATURAL CORRECTION

The genus *Cheilosia* was erected by Meigen in 1822 (*Syst. Besch. Zweifl. Ins.*, **3**: 289). Later Agassiz in 1846 (*Nomen zool. Index Univ.*) emended it to *Chilosia*. Since *Chilosia* Agassiz is an unjustified emendation of *Cheilosia* Meigen, it becomes the junior objective synonym of the latter (Article 33 (a) (ii)). Recently it has been observed that both *Cheilosia* and *Chilosia* are independently used (*Zool. Records* 1953-1965). Since *Cheilosia* is the only available name and *Chilosia* is a rejected one, the former should be used. This genus belongs to the family Syrphidae (Diptera).

V. C. Kapoor,  
Department of Zoology,  
Punjab Agricultural University,  
Ludhiana (India).

## Notes and Observations

THE WAVED BLACK MOTH (*PARASCOTIA FULIGINARIA* L.) IN WORCESTERSHIRE.—I have recently learnt that Andrew E. C. Adams, a new recorder for the National Lepidoptera Survey and a student at Malvern College, had single male specimens of *Parascotia fuliginaria* L. to m.v. light at Powick near Worcester on 21st and 23rd July 1972, of which the first moth was kept and examined.

These records follow the recent reporting by L. J. Evans of the capture of a single female at the Randan group of

woods near Bromsgrove on 24th July 1971, which was the first record of this species for the Midland Plateau (cf. *Proc. Birmingham nat. Hist. Soc.*, **22** (1973): 191-198).

Since the 1972 records we made a concerted effort to look for *P. fuliginaria* in July 1973, and managed to record a further four specimens, two by Andrew Adams again, and two by Dr A. N. B. Simpson of Worcester. The latter were only a few miles from the Lower Teme Valley in the same geographical area—one at Alfrick and one at Monk Wood.

The particularly interesting point about Mr Adam's and Dr Simpson's observations is that the moths were taken only a few miles from Broadwas where the late Dr R. H. Clarke had three specimens over the period 1955-61, before he moved to Oxfordshire. It therefore seems possible that this species may be breeding in the lower valley of the River Teme.

The only other known records for Worcestershire are of a single larva at Arley in the Severn Valley in 1949, and the old reference by Barrett to a specimen at Croome near Pershore before 1860. — J. E. GREEN, 25 Knoll Lane, Poolbrook, Malvern, Worcs.

**CALLICERA SPINOLAE RONDANI (DIPTERA: SYRPHIDAE) IN CAMBRIDGESHIRE.**—On 8th September 1973 I took a male *Callicera spinolae* at Lode in Cambridgeshire. This is the first time a male of this species has been found in Britain, and was near to where I caught my previous specimen, a female, on 19th September 1971. This female C. O. Hammond mentioned in his article on *C. spinolae* (in *Ent. Rec.*, **85**: 22). Further searching of the locality revealed another female on 22nd September 1973, which I was unable to capture. All three individuals were found feeding on ivy blossom.

In Britain, *C. spinolae* appears to be confined to East Anglia where seven specimens have now been recorded. Climatic conditions may restrict it to this area, although further searching of ivy blossom during September in wooded areas may reveal a much wider distribution. — I. PERRY, 27 Mill Road, Lode, Cambs. 12.i.1974

**DAY-FLYING LEPIDOPTERA ATTRACTED TO LIGHT.**—To add to Mr B. K. West's account (*Ent. Rec.*, **85**: 267) of a numerous attendance of the usually day-flying *Anarta myrtilli* (L.) at light on Studland Heath on 15th August 1973, I have a number of records of single specimens of it in light traps in west Surrey. Some of these traps, like my own here at Bramley, were up to two miles away from any likely breeding grounds; but on 25th and 27th August 1955 I had it in numbers at m.v. light in the field on a heath near Bisley, both soon after dusk and later in the night. On other nights, however, both there and in similar localities where the species is common by day, none appeared. It seems that nocturnal flight of *A. myrtilli* requires some special conditions. What these are is not clear: I can only say that it does not appear to be restricted to warm or cloudy nights, or to nights when the attendance of other species



is very large. In this it resembles the occasionally nocturnal *Orgyia antiqua* (L.): I have a few trap records of this, and I had one at light in the field at Durfold Wood, Surrey, on a very unfavourable night in October 1973.

One would like to know more about these occasional nocturnal flights of usually diurnal British species. Has anyone had *A. cordigera* (Thunb.), *A. melanopa* (Thunb.) or *Ligdia carbonaria* (Clerck) at light in the Scottish Highlands? Or *Pseudopanthera macularia* (L.) or the *Archearis* species (Orange Underwings) in England? Is there perhaps some sexual distinction, as with *Lasiocampa quercus* (L.), *Macrothylacia rubi* (L.), *Saturnia pavonia* (L.), females of which fly at night but the males only by day? Has nocturnal flight anything to do with migration, as is certainly the case with the occasional appearance of *Vanessa atalanta* (L.) at light.—R. F. Bretherton, Folly Hill, Birtley Green, Bramley, Guildford, Surrey GU5 OLE. 12.i.1974.

**HYLES GALLII ROTT. IN LINCOLNSHIRE.**—A male *Hyles gallii* Rott. was seen in Boston in daylight "fighting" (according to my informant) "a House Sparrow". It was subsequently captured. On the night of the 15th/16th August a female was taken in the static light trap at the Gibraltar Point Field Station. She was in very worn condition and on dissection I found eight imperfectly formed eggs in a grossly distended oviduct and patulous vagina. The obvious inference was that she had arrived in this country laden with eggs and had sought the first opportunity to deposit them. Indeed, when on the 6th September the first search was made, fourteen larvae were found on small shrubby plants of *Epilobium angustifolium* growing on the seaward side of the sand dunes. Seven more were found on the 8th and five more on the 9th. In all well over fifty larvae were found but a number showed a punctured wound just above the lateral line in their distal segments from which haemolymph was still flowing. These larvae were obviously dying. It was thought that these wounds were probably due to a peck by a bird, probably a Lark, abundant in the area, made in fright or surprise as a single act and not followed up as in a more deliberate attack. The distribution and the very varying size of the larvae suggested that they were the offspring of two, and more probably, three females. It has often been said that the eggs are laid commonly in pairs and, indeed, it was noticed that two larvae were frequently found near or on the same plant. No larvae were found on the very large clumps of *Epilobium* which occur at intervals along the sand dunes but this may be because such clumps are much more difficult to search effectively.

Almost all were found between 11.20 a.m. and 1 p.m. and 3.30 p.m. and 5 p.m. in warm, sunny weather, when they were feeding completely exposed or lying basking in the sun. The



site of some of these larvae was marked and when, between these times, they were looked for again, it was found that the smaller green larvae were resting along the mid-rib on the under side of a leaf, while the darker larvae had crawled either under the dead leaves at the base of the plant or among the debris and cover of marram and *Rubus caesius*. This was in contrast with the same larvae in captivity which fed at any time, in sunlight or in darkness, and which let no opportunity go by of basking in the sun.

The first of 48 larvae pupated on the 16th September and the last on the 8th October. The habit of dashing wildly round the cage for as long as two days, noted by Huggins (*Ent. Rec.*, 85: 234) was very noticeable and at first alarming for it was feared that suitable conditions for pupation had not been provided. In the event all pupated safely, the majority spinning a flimsy cocoon immediately under a layer of sphagnum overlying some peat; only the last two to pupate, a male and a female, took advantage of the full depth of peat to make a much tougher cocoon close against the wooden sides of the cage five inches below the surface.

During the month of August seven larvae were found in the city of Lincoln. Another larva was found near Woodhall on September 13th.—R. E. M. PILCHER, The Little Dover House, South Thoresby, Alford, Lincs.

SOME RECORDS OF MIGRANT LEPIDOPTERA IN WESTMORLAND IN 1973—Records appearing in the entomological journals indicate that 1973 was a good year for migrant lepidoptera in Great Britain. Here at over 600 feet above sea-level in north-west England I do not seem to be well placed as regards migrants. However, one or two records have come to my notice and seem worth publishing.

A worn male *Agrius convolvuli* (L.) was found in Kendal on 24.viii.1973 by a Mr H. Reid and brought to me for identification. As the specimen was worn I did not set it but instead marked the fore-wings with blue cellulose paint and released it. Nothing further has been heard of it—it certainly did not come to my mercury vapour light which at the time was being operated every night. A few *Udea ferrugalis* (Hübner) appeared in my trap here at Kendal Wood on 8.ix.1973, and this was the only night on which they were observed.

Records currently appearing indicate that 1973 has been a "gallii" year. I was not lucky enough to take any moths at my trap here but I had a larva of *Hyles gallii* (Rott.) brought to me which had been found in Kendal on 12.ix.1973. The larva was full-grown and obviously looking for a site for pupation. This I provided and now look forward to the emergence of the imago later this year.

Perhaps it is worth noting that during October and well into November *Autographa gamma* (L.) was extremely abundant here joining the many *Syrphids* visiting Michaelmas daisies and other flowers in the garden.—Dr NEVILLE L. BIRKETT, KENDAL WOOD, NEW HUTTON, nr. Kendal. 20.i.1974.

MIGRANT LEPIDOPTERA IN GLOUCESTERSHIRE.—Since I moved onto the Cotswolds from my old house in the Severn Vale I have not done so well with migrant visitors to the M.V. trap; but 1973 was much better with the following records:—August 1, *Hyles gallii* Rott., female. August 9, *Eurois occulta* L., the typical grey form of the migrant specimens. September 5, *Leucania vitellina* Hübn.; *Rhodometra sacraria* L., two. September 20, *Herse convolvuli* L., female.—R. P. DEMUTH, Watercombe House, Oakridge, Glos. 12.i.1974.

## Current Literature

**Crickets and Grasshoppers of the British Isles** by E. C. M. Haes. 15pp. British Naturalists' Association, 1973. 15p.

This useful pamphlet consists of an introduction to the study and identification of the Orthoptera, with notes on the related Orders Dictyoptera (Cockroaches) and Phasmida (Stick-insects). Included are 19 good black and white photographs of the living insects.—J.M.C.-H.

**Colour Identification Guide to British Butterflies** by T. G. Howarth, 48 coloured plates by A. D. A. Russwurm and R. B. Davis, 4to., 46 pp. Warne, London, 1973. £3.

The introduction to this book and all the plates were published in Howarth's *South's British Butterflies* which we reviewed in 1973 (*vide Ent. Rec.*, **85**: 203-204)

The text mainly consists of tables in which the species are arranged alphabetically by their vernacular names with details on them set out in nine columns. Within these columns the author gives us in readily accessible form particulars of each butterfly as under: Family; Scientific Name; Authors; Status; British Racial Names; Number of Named Aberrations; Variation; Calendar; Larval Foodplants; Broods; Larval Instars; Habitat; Distribution; Abundance. There is also an identification key to species, a classified list of scientific names systematically arranged, and an interesting chapter on variation.

The note on *Papilio machaon* suggests this butterfly still persists in Cambridgeshire, yet we believe that it has now been extinct there for many years. However, we are reliably informed that it is hoped in 1974 to re-introduce *machaon* from Norfolk stock into Wicken Fen, where it was last seen in 1949. On the other hand, Ireland is not included in the distribution of *Argynnis euphrosyne* where it is certainly present though very local. For some species, the calendars (e.g. those for *Nymphalis antiopa* and *Everes argiades*) and foodplants (e.g. those for *Cyaniris semiargus*) appear misleading since these seem to be based on behaviour abroad and such is not specified.

This book is attractively illustrated, contains much useful information concisely presented, and is very good value for money.—J.M.C.-H.



## **Exotic Entomological Specimens**

**LEPIDOPTERA — COLEOPTERA — MISCELLANEOUS  
INSECTS OF THE FINEST QUALITY WITH DATA**

20 page Illustrated Catalogue, 20p

**LIVESTOCK** — please send 15p for current catalogue of Ova,  
Larvae, Pupae, Cocoons, etc.

**R. N. BAXTER**

**16 BECTIVE ROAD, FOREST GATE, LONDON, E7 0DP.  
ENGLAND**

*FOR A PERSONAL AND INTERESTED SERVICE*

In your replies please mention "The Entomologist's Record"

## **ENTOMOLOGICAL CABINETS**

**Ten Drawer Unit Insect Sections**

---

*Sole manufacturers of the "Hill" Interchangeable  
Unit System formerly produced by J. J. Hill & Son Ltd.*

---

**R. Cattle, Limited**

*Precision Woodworkers*

P.O. BOX NO. 1

**Oxford Road, Gerrards Cross, Bucks.**

**Tel. Gerrards Cross 87131 (4 lines)**



# IMAGO BUTTERFLIES

**LEPIDOPTERA SUPPLY & RESEARCH SPECIALISTS**

Suppliers of Livestock — Exotic and European  
Over forty species listed

Plus prospective list of species we hope to supply in the near future  
General Catalogue available on receipt of 30p (Overseas \$1)

This includes subscription to our annual mailing lists

---

**62 HIGH STREET, CROYDON, SURREY, ENGLAND**

Please mention the Entomologist's Record

---

## FOR THE ENTOMOLOGIST

Apparatus, Books, Cabinets and Set Specimens

Price lists of the above are issued from time to time so if you would like to receive regular issues please send me a postcard stating your interests

---

**L. CHRISTIE**

**137 Gleneldon Road, Streatham, London, S.W.16, 2BQ, England**

(Postal business only)

*Official agent for publications of the Amateur Entomologist's Society*

---

**the BUTTERFLY FARM LTD. (Founded 1894)**

**Bilsington, Ashford, Kent England TN25 7JW. Tel. Ham St. 2513**

---

As the oldest farm in the world we are justly proud of our reputation as suppliers of the finest entomological materials.

For livestock and preserved specimens from all over the world; books new or old; breeding, storage and collecting equipment; educational displays, please write for lists and details of our Mailing Index.

We urgently need suppliers of surplus collections, books and cabinets, and also reliable suppliers of livestock.

Visitors especially welcome to look around *the Butterfly Farm*, please phone in advance. See our living and museum displays and our British Wildlife Sanctuary—to which a small charge will go.

---



---

## THE AMATEUR ENTOMOLOGISTS' SOCIETY

---

The Society was founded in 1935 to cater especially for the younger or less experienced Entomologist.

For full details of publications and activities, please write (enclosing 3p stamp to cover postage) to:—**R. D. HILLIARD**, Hon. Advertising Secretary, A.E.S., 18 Golf Close, Stanmore, Middlesex.

---

---

## BRITISH NATURALISTS' ASSOCIATION



has twenty active branches in Britain and a world-wide membership. Its official organ, *Country-Side* (published three times a year), is the oldest-established British magazine devoted to general natural history

Membership subscription 75p per annum

*Full details and application form obtainable from:*

**B.N.A., 'Willowfield', Boyneswood Road, Four Marks, Alton, Hants**

---

---

## THE NATURALIST (founded 1875)

*A Quarterly Illustrated Journal of Natural History*

**Edited by W. A. SLEDGE, Ph.D., B.Sc.**

Annual subscription: £2.00 (post free)

Single numbers 50p

*Separates of the collected instalments of the:—*

### **LEPIDOPTERA OF YORKSHIRE (Macrolepidoptera)**

which appeared serially in *The Naturalist* (1967-1970) are also available on application. Price 50p, plus 4p postage

**The Editor of the Naturalist,**

Department of Botany, The University, Leeds, LS2, 9JT

---

# BOTSWANA

## ENTOMOLOGIST

required to continue field work research into major crop pests and investigate the biology and possible control of a series of insects which are pests in adult stages.

**Salary in the range £1,920 to £4,750 p.a. which includes an allowance, normally tax free, of £480 to £1,560 p.a. Terminal gratuity 25% of total basic salary.**

**For a married man with two children paying tax at the standard rate the total emoluments described above, including gratuity, approximate to a gross (i.e. before tax) U.K. return of £3,800 to £7,000 and for a single man about £2,850 to £6,300 p.a. Appointment will be on agreement for 24-36 months initially.**

Candidates, 25-55 years of age **MUST** have an Honours degree in Ecology or appropriate Agricultural Science with at least 3 years post graduate experience in Entomological research. Other benefits include free passages, Government quarters at moderate rental, generous leave on full salary and a possible appointment grant of up to £200 and car advance up to £600.

The post described is partly financed by Britain's programme of aid to the developing countries administered by the Overseas Development Administration of the Foreign and Commonwealth Office.

**For further particulars you should apply, giving brief details of experience to** **crown agents**

**M. Division, 4 Millbank, London SW1P 3JD, quoting reference number M3F/740235/EBE.**

---

# EXCHANGES AND WANTS

---

*For Sale*.—Separates of "Emmet's Notes on some of the British Nepticulidae". Price 35p per copy. Printed covers for the collection of 5 parts.—Apply to S. N. A. Jacobs, 54 Hayes Lane, Bromley BR2 9EE, Kent.

*Back numbers*.—Our supplies of certain back numbers are now a little reduced and we would be willing to buy in a few copies of Vols.: 75, 77, 79, 82 and 83 at subscription rates. Due to an error there are now no further stocks of the January 1973 issue, we would therefore be indebted to anyone who could part with this issue.—S. N. A. Jacobs, 54 Hayes Lane, Bromley, Kent.

*Celerio galii*.—*The Bedstraw Hawkmoth*.—I have records of four *Celerio galii* being caught in July including one on the Ocean Weather Ship 'Weather Monitor' stationed some 400 miles west of Scotland and 200 south of Iceland. I understand that other specimens of this immigrant Hawkmoth have been caught and would welcome details of date, time and place of any captures. — R. A. French, Entomology Department, Rothamsted Experimental Station, Harpenden, Hertfordshire AL5 2JQ.

*For Sale* — Very high quality 16 drawer polished mahogany cabinet, now a valuable antique, bearing the name 'Watkins and Doncaster, 36 Strand, London, W.C.' With bolection-moulded semi-circular head panelled door and lock, moulded plinth and top. Almost as new internally and in beautiful condition. Airtight drawers with concealed slots all round, size 18"×18"×2" deep, all recently recorked.—Height 3'6", depth 1'9½", width 1'9½" overall. £250. A. P. Gainsford. Tavistock 3203.

*Records of Sesiidae* — In preparing the material on clearwings for Vol. 2 of *The Moths and Butterflies of Great Britain and Ireland* (Editor John Heath), I would welcome recent records of any of the 15 known species. Precise details of localities are not required but only sufficient information to enable me to relate a record to a particular vice-county. Would subscribers having the required information kindly reply to: — B. R. Baker, Reading Museum and Art Gallery, P.O. Box 17, Town Hall, Reading, Berkshire, RG1 1QN.

*Distribution and Ecology of Insects* — An introductory course with this title is being directed at Preston Montford Field Centre by Dr M. G. Morris from 1st-8th May 1974. Enquiries should be addressed to:—The Warden, Preston Montford Field Centre, Montford Bridge, Shrewsbury, SY4 1DX.

*The Maidstone Museum* have recently set up a Kent Biological Archives and Record Centre, which can now receive records based on the tetrad system (2 Km. sq.), for all insect orders. In particular, a scheme is being set up to record both Macro and Microlepidoptera from 1971 onwards. This is to run in parallel with the very successful plant scheme. The records will be available to any serious student of the Fauna or Flora of Kent. This ambitious scheme obviously must enlist the help of as many resident and visiting Lepidopterists as possible. For further information, please write to: S. E. Whitebread, 2 Twin Cottage, Grove Farm, Higham, Nr. Rochester, Kent, ME3 7NX. Records for other insect orders should be sent to Mr E. Philp at the Maidstone Museum, St Faith's Steet, Maidstone, Kent.

[continued opposite

---

*Offers wanted for the bound volumes 9, 10 and 12 of the Entomologist Record. Replies to Colin Pratt, 5 View Road, Peacehaven, Newhaven, Sussex.*

---

## THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

*(Founded by J. W. TUTT on 15th April 1890)*

---

*The following gentlemen act as Honorary Consultants to the magazine:*

*Orthoptera: D. K. Mc. E. KEVAN, Ph.D., B.Sc., F.R.E.S., Coleoptera: A. A. ALLEN, B.Sc.; Diptera: E. C. M. d'ASSIS-FONSECA, F.R.E.S.*

---

### TO OUR CONTRIBUTORS

All material for the **TEXT** of the magazine must be sent to the **EDITOR** at St Teresa, 1 Hardcourts Close, West Wickham, Kent.

**ADVERTISEMENTS, EXCHANGES and WANTS** to Dr **IAN WATKINSON**, "Windrush," 2 Fairleas, Sittingbourne, Kent. Specimen copies supplied **by Dr Ian Watkinson on payment of 40p or sterling equivalent which will be taken into account if the person in question becomes a full subscriber.**

**Changes of address, also enquiries regarding Back Numbers, Volumes and Sets of Volumes, to: S. N. A. JACOBS, 54 Hayes Lane, Bromley, BR2 9EE, Kent.**

Subscriptions should be sent to the Treasurer, **A. C. R. REDGRAVE**, 2 Connaught Way, Tunbridge Wells, Kent, England.

**REPRINTS:** 25 copies, taken straight from the magazine are sent gratis to contributors of articles; these may contain extraneous matter. More formal reprints from re-set type may still be had at cost price, and orders for these should be given, at the latest, with the return to the Editor of the corrected proof.

**ILLUSTRATIONS** are inserted on condition that the **AUTHOR DEFRAYS THE COST.**

Contributors are requested not to send us Notes or Articles which they are sending to other magazines.

All reasonable care is taken of MSS, photographs, drawings, maps, etc., but the Editor and his staff cannot hold themselves responsible for any loss or damage.

---

### SPECIAL NOTICE

The Editor would be willing to consider the purchase of a limited number of certain back issues.

---



# A SPECIAL ANNOUNCEMENT FROM SARUMAN BUTTERFLIES and THE BUTTERFLY CENTRE

As many of our clients may be aware Saruman has worked in close co-operation with The Butterfly Centre, Tenterden, for some time. We are now pleased to announce an amalgamation of the two firms which will be reconstituted as SARUMAN, from 1st March, 1974.

The Butterfly Centre has a long established international reputation with amateur and professional entomologists and clients are assured that the high standards of service will be maintained.

Visitors to Tunbridge Wells will now be able to view, under one roof, the largest entomological stock in this country.

## SARUMAN

(incorporating The Butterfly Centre)

Business Reg. No. 1685058 ————— V.A.T. Reg. No. 210 4043 36

**Specialists in British and World Lepidoptera  
and Entomologica**

EQUIPMENT

LITERATURE

LIVESTOCK

PHOTOGRAPHS

**58 HIGH STREET. TUNBRIDGE WELLS,  
KENT, TN1 1XF, ENGLAND**

**Telephone: Tunbridge Wells 31926**

**Hours: 9.30 a.m.-5.30 p.m. except Wednesdays and  
Sundays**

*Directors:* Paul Smart, F.R.E.S.  
Gita Smart

*Technical Staff:*  
Trevor Scott

*Consultant:* John Muirhead

Chris Samson, F.R.E.S.

**Exhibition and World Collection Open Daily**

**40-page Full Colour Main Catalogue—95p post free  
Supplementary Lists—40p per annum**

# CONTENTS

A New Taxon of the <i>Lepidochrysops ortygia</i> (Trimen) Group (Lepidoptera: Lycaenidae) from the South Western Cape. C. G. C. DICKSON .. .. .	65
<i>Lycaena dispar rutila</i> Werneberg: A Chance Meeting at Ravenna, Italy. L. McLEOD .. .. .	68
Some Lepidoptera in Radnorshire, 1973. M. D. COX and R. G. WARREN .. .. .	69
Notes on the Microlepidoptera. H. C. HUGGINS .. .. .	70
Interspecific Competition in Butterflies. C. J. LUCKENS .. .. .	71
Late Autumn in the Isles of Scilly. R. P. DEMUTH .. .. .	72
Notes on the Distribution of Some Dragonfly Species (Odonata: Anisoptera) of Bengal. T. R. MITRA and A. H. LAHIRI .. .. .	73
Notes on some of the British Nepticulidae II. A. M. EMMET .. .. .	75
Gargia, Finnmark, July 1973. M. J. PERCEVAL .. .. .	81
Warwickshire and Elsewhere, 1973. DAVID BROWN .. .. .	84
Systematic Position of the Genus <i>Homotages</i> Burr and Nomenclatural Status of <i>Anechura zubovskii</i> Semenov (Dermaptera). V. C. KAPOOR .. .. .	91
Nomenclatural Correction. V. C. KAPOOR .. .. .	92
Notes and Observations:	
The Waved Black Moth ( <i>Parascotia fuliginaria</i> L.) in Worcestershire. J. E. GREEN .. .. .	92
<i>Callicera spinola</i> Rondani (Diptera: Syrphidae) in Cambridge-shire. I. PERRY .. .. .	93
Day-Flying Lepidoptera attracted to Light. R. F. BRETHERTON .. .. .	93
<i>Hyles galli</i> Rott. in Lincolnshire. R. E. M. PILCHER .. .. .	94
Some Records of Migrant Lepidoptera. N. L. BIRKETT .. .. .	95
Migrant Lepidoptera in Gloucestershire. R. P. DEMUTH .. .. .	96
Current Literature .. .. .	96

595.7059  
Ent.

# THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

*Edited by J. M. CHALMERS-HUNT, F.R.E.S.*

*with the assistance of*

A. A. ALLEN, B.SC., A.R.C.S.

C. A. COLLINGWOOD, B.SC., F.R.E.S.

NEVILLE BIRKETT, M.A., M.B.

H. C. HUGGINS, F.R.E.S.

S. N. A. JACOBS, F.R.E.S. (Registrar)

S. WAKELY

Lieut. Col. A. M. EMMET, M.B.E., T.D., F.R.E.S

H. B. D. KETTLEWELL, M.A. M.B., B.CHIR., F.R.C.S., L.R.C.P., F.R.E.S



ANNUAL SUBSCRIPTION FOR THIS VOLUME No. 86

£4.00 Post free, for payment in sterling.

£4.25 if payment is made in Foreign Currency.

Is now due and should be paid to

*Hon. Treasurer:*

P. J. RENSHAW, 53 Links Road, West Wickham, Kent BR4 0QN

# *Studying Insects*

## **A Practical Guide**

**R. L. E. FORD**

**£2.50 net**

**0 7232 1705 X**

This is a revised edition of an earlier volume, *Practical Entomology*, and reflects the current emphasis on studying living insects rather than on collecting and killing them. Although primarily concerned with butterflies and moths, the book also covers groups such as ants, wasps and humblebees, and has sections on breeding insects and on conservation. With 16 pages of plates in colour and black and white.

# *Colour Identification Guide to British Butterflies*



**T. G. HOWARTH, B.E.M., F.R.E.S.**

**£3.00 net**

**0 7232 1710 6**

This attractive and useful guide contains the 48 colour plates from T. G. HOWARTH'S larger work *South's British Butterflies*. In addition there are sections on Variation, Conservation and Collecting, Families, as well as Information Tables, Glossary, Identification Key and Classified List of Butterflies.

**FREDERICK WARNE & CO LTD**

**40 Bedford Square London WC1B 3HE**



## Collecting Lepidoptera in Britain during 1973

By C. G. M. de WORMS, M.A., Ph.D., F.R.E.S.

Yet a third mild winter in succession ushered in the start of 1973. Almost the whole of January was unusually congenial with the thermometer often well into the 50's and the early geometers well out by the middle of the month, notably *Phigalia pedaria* L. and *Erannis leucophaearia* L. Even the early days of February were equally pleasant. It was only at the middle of this month that quite a cold snap set in, but it was only short-lived. The third week provided some quite warm days which encouraged the hibernators to awake from their winter sleep with the appearance of the first Peacocks and Small Tortoiseshells. On the 20th at Juniper Hall near Box Hill among several geometers on the windows was a hibernated female of *Chloroclysta miata* L., quite a rare insect in this part of southern England.

A fine spell opened at the beginning of March which proved a first class period for the emergence of most of the early spring species, some of which were on the wing when I stayed near Ipswich with Mr William Storey on the 3rd; these included a good many *Alsophila aescularia* Schiff. 4th March saw the first appearance of *Achlya flavicornis* L., *Orthosia gothica* L., *O. incerta* L. and *Biston strataria* Hufn. with *Xylocampa areola* Esp. on the 5th. The willows were well in bloom in many places by the second week of March with the warm weather continuing right through to the middle of the month. On the 21st *Archiearis parthenias* L. was flying on Horsell Common. But conditions deteriorated somewhat by the 23rd when I visited Dorset where nothing was seen on the wing nor in the New Forest on my way back on 27th March. However, the temperature was well in the 50's almost daily from the 4th April onwards rising to 65 deg. F. in the shade on the 15th when Mr J. Messenger accompanied me to the Chiddingfold area where *Gonepteryx rhamni* L. was in numbers, but the beating of the sloe blossom yielded very little of note.

For the Easter period we had arranged to revisit the Highlands but had to abandon the enterprise owing to unforeseen events. As we heard later, it proved to be a most inclement holiday period in those parts so that we were glad to spend it less far from home in the New Forest which we reached on 19th April with Lyndhurst as our headquarters. But even in this famous part of England the weather was far from propitious. The following day, Good Friday, was very dull and wet when we tried beating the sloe blossom near Burley. Near there we came across a fine large bank of bushes in full bloom which provided several nearly full-fed larvae of *Chloroclystis chloerata* Mab. That evening we tried our m.v. in Beeching Lane, just behind Lyndhurst, the scene of many marvellous collecting nights before the War. The only

species to be attracted was a single *Polyploca ridens* F. and a few *O. gothica* L. The next two days of the Easter holiday were even worse with sleet showers on the Sunday and no collecting possible by day or night. However the elements let up on 23rd April when we were able to beat further *C. chloërata* larvae in the vicinity of Lyndhurst and Brockenhurst. After dark we ran our lights at Tantivy Wood near Beaulieu in company with Mr Barry Goater, but again *P. ridens* was almost our only visitor with a single *Trichopteryx carpinata* Borkh. and a few *Eupithecia abbreviata* Stephens. Beeching Lane was once more our venue on the night of the 24th when somewhat more insects came to our light, as many as 13 species, including quite a run of *P. ridens* and *B. strataria* in very varied forms. A female *Orthosia gracilis* Schiff. of the grey type appeared which is unusual in the New Forest where the deep red-brown form is prevalent among the bog myrtle on the swamps. It is indeed curious how the habitat and the food-plant seems to control the colour of this species which is probably gradually diverging. Other visitors that night included *Chaonia ruficornis* Hufn., *Cerastis rubricosa* Schiff. and *Eupithecia nanata* Hübn. besides the common *Orthosias*. We returned to Surrey on 25th April with the thermometer standing a 63 deg. F. followed by two equally warm days, but the temperature fell rapidly the last days of April.

However, conditions recovered on 1st May when m.v. light in my sister's garden at Virginia Water produced *Colocasia coryli* L., *P. ridens* F., *C. ruficornis* and a female *Dasycampa rubiginea* Schiff. a very late date for this choice species from which I obtained quite a number of ova. These eventually produced some fine bred specimens. The week that followed was fairly bleak and wet. It was not till the 11th that the first Whites were seen, mainly *Pieris napi* L. and *P. rapae* with *Pararge egeria* L. in Alice Holt Forest on the 13th. The day temperature rose to 73 deg. F. on the 18th when *Anarta myrtili* L. was careering over the Chobham heaths.

Another warm day favoured me when I did a tour of the Surrey-Sussex border on 20th May, visiting the Petworth area and the Durfold woods where *Clossiana euphrosyne* L. was well on the wing with *Anthocharis cardamines* L. which was also plentiful at Horsell on the 22nd, another very delectable day.

On 25th May I set out for Central Italy returning on 12th June to be welcomed by a very congenial period well in the 70's. With the temperature at just on 80 deg F. on the 15th many geometers were flying on parts of Chobham Common, especially *Perconia strigillaria* Hübn. It was only a little less warm on 17th June when Mr Messenger accompanied me once more round the woods at Ebernoe and near Chiddingfold where we saw a few *Leptidea sinapis* L., *Clossiana selene* Schiff. and worn *C. euphrosyne* L. still on the wing at this late date, *Gonepteryx rhamni* L. and *Pieris rapae* L. were particularly plentiful, as was *Coenonympha pamphilus* L.

On the morning of 22nd June I set out early to cover the near 200 miles to Tavistock crossing Dartmoor by the Moretonhampstead road. The weather was ideal and the sun gave us its welcome warmth on the 23rd when Capt. Peter Gainsford kindly conducted me to a special locality where we found *Mellicta athalia* well out and in appreciable numbers. It was interesting to note how this race of this delightful butterfly differed from its eastern relative in generally smaller size and somewhat darker coloration. Butterflies were in plenty in brilliant sunshine, especially *Maniola jurtina* L. and *Pararge egeria* L. We also saw several *Argynnis adippe* L. In the afternoon we visited Glenofen, a hidden wooded valley a few miles west of Tavistock and I was again in this attractive spot on the morning of the 24th, though little seemed on the wing. That afternoon I travelled via Two Bridges, to Ashburton and Exeter to stay with Mr and Mrs George Woollatt at Limpstone near Exmouth. That evening under quite favourable conditions we ran our m.v. lights on the edge of Woodbury Common. Among 28 macro species seen up till midnight were *Stauropus fagi* L., *Pterostoma palpina* Clerck, *Drymonia dodonaea* Schiff., *Dasychira pudibunda* L., *Drepana lacertinaria* L., *Spilosoma lutea* Hufn., *Hadena contigua* Schiff., *Diarsia brunnea* Schiff., *Leucania pudorina* Schiff., *Pseudopternpa pruinata* Hufn., *Ortholitha plumbaria* Fab., *Perizoma affinitata* Stephens, *Alcis repandata* L. and *Biston betularia* L. Over 30 species visited Mr Woollatt's m.v. trap of which those of note included *Deilephila elpenor*, *Apatelepsi* L., *Cucullia umbratica* L., *Lycophotia varia* Vill., *Sterrhia interjectaria* Bois., *Xanthorhoë designata* Hufn., *Hydrelia flammeolaria* Hufn., *Lygris pyraliata* and *Bapta temerata* Schiff. Another glorious and warm day greeted us on 25th June when I went with my hosts to some woods to the north east of Exeter which again provided butterflies in good numbers and we were surprised to find *Argynnis paphia* L. already well out and quite numerous. *A. adippe* L. was also to the fore as were *Clossiana selene* and *Pararge egeria* with *M. jurtina* in great plenty. That afternoon I moved on to Blandford to stay with my relations and on the 26th I visited Mr and Mrs R. Hatton in their new home bordering a large heath at Holt, just north of Wimborne. Here I saw the first Ringlets of the season. On my way back to Surrey later that day I made a brief halt on one of the heaths at the Ringwood end of the New Forest. Here among the short bog myrtle I found several tents containing the full-fed larvae of *Orthosia gracilis* Schiff., usually producing the dark-brown form of this species. The few days had proved very gratifying, seeing so many of our butterflies once more after several seasons of comparative paucity.

The very fine weather continued for the rest of June with the temperature in the 70's daily. On the last day of the month among 34 species that came to my m.v. light near Bisley were an early-flying *Laothoë populi* L. female,



*Thyatira batis* L., *Cybosia mesomella* L.; *Spilosoma lutea* Hufn., *Leucania comma* L., *L. pudorina* Schiff., *Petilampa minima* Haworth, *Apamea crenata* Hufn., *Ligephila pastinum* Treits, and many geometers including *Sterrhia trigeminata* Haworth, *Comibaena pustulata* Hufn., *Euphyia unangulata* Haworth, *Mysticoptera sexalisata* Hübn., *Semiothisa liturata* Clerck, as well as several melanics of this insect. Among other geometers were *Plemyria bicolorata* Hufn., *Bupalus piniaria* L. with a good many females some of which were the melanic f. *funebria*. A small pug proved to be *Chloroclysta chloërata* Mab., which has so far seldom been seen at light. A latecomer as usual was the large *Boarmia roboraria* Schiff. with a host of *Alcis repandata* L.

July opened with a day at 80 deg. F. in the shade. I joined Dr John Holmes that day near Bordon and under glorious conditions we proceeded to investigate the propensities of Ludshott Common and Waggoners Wells in the Hindhead district, both most attractive localities with great possibilities, both by day and night. But in spite of the warmth only a few *C. selene* put in an appearance with a lot of *Zygaena lonicerae* Scheven. However, that afternoon we penetrated the northern part of Alice Holt Forest which I had not been to before, *Limenitis camilla* L. was already well out, while *Plebejus argus* L. was flying in some numbers on a nearby common. The high temperatures continued for the subsequent week bringing the summer species out early. On the 5th with 81 deg. F. in the shade the Rev. Anthony Harbottle accompanied me to Alice Holt Forest but it was apparently just too early for the Purple Emperor; White Admirals and Ringlets were much in evidence and there were plenty of Silver-studded Blues to be seen on Chobham Common late that afternoon.

On 6th July there was one of the wet days during this period when I motored to Ashford in Kent. In the Orlestone woods that night 55 species came to my m.v. light up till 1 a.m. The most notable was a large attendance of *Tethea fluctuosa* Hübn. with several melanics. This uncommon form seems to be increasing in this locality. As usual among the earliest arrivals was *Angerona prunaria* L. in its many varieties. Other species worthy of mention included a good many *Deilephila elpenor* L. with the Prominents *Notodonta dromedarius*, *N. ziczac* L. and *Pterostoma palpina* L., also *Pheosia tremula* Clerck, one of the latest arrivals. Both *Tethea* or Schiff. and *T. ocularis* L. were among the early species, while a couple of *Stauropus fagi* L. came about midnight. Both *Thyatira batis* L. and *Habrosyne detersa* L. appeared with the Arctiids *Mitochrista miniata* Forst., *Cybosia mesomella* L. and *Eilema complana* L. Among the noctuids were *Apatele leporina* L., *A. megacephala* L., *Amathes ditrapezium* Schiff., *Diarsia brunnea* Schiff., *Apamea lithoxyloa* Schiff., *Lithocodia fasciana* L., *Plusia iota* L. and *P. gamma* L., also two *Pseudoips bicolorana* Fuessl. and the Deltoids *Zanclognatha tarsipennalis* Treits. and



*Paracolux derivalis* Hübn. The geometers were mainly represented by *Geometra papilionaria* L., *Comibaena pustulata* Hüfn., *Hemithea aestivaria* Hübn., *Cidaria fulvata* Forst., *Bapa temerata* Schiff., *Eupithecia expallidata* Doubleday, *Campaea marqaritata* L., *Plagodis dolabraria* L., *Alcis repandata* L. and *Cleora rhomboidaria* Schiff.

I visited Hoads Wood the morning of 7th July, but no sun was apparent and the only quarry was a few small larvae of *Tethea* or hiding between leaves of aspen fastened face to face with silk. That evening Mr George Youden joined me at Dungeness, but the night was far from propitious. However, there was a sprinkling of insects on the sugar posts including a few *Procus literosa* Haworth and *Eilema pygmaeola* Doubleday, both of which also appeared at our m.v. light on the shingle. The commonest visitor was *Pseudoterpna pruinata* Hüfn. A walk in the Orlestone woods the morning of 8th July provided several *Limenitis camilla* L. and many *Maniola jurtina* L. Later in brilliant sunshine at Mr Michael Tweedie's house near Rye I saw the first *Maniola tithonus* L. with many *Pieris napi* L. The thermometer reached 78 deg. F. in the shade on 9th July when I was once more in Hoads Wood, but little of note was flying. I returned to Surrey that evening. The warmth continued daily till the 13th when General Sir George Johnson drove me to Folkestone, but we saw nothing special en route. The following day we crossed to France and drove to Provence returning on 1st August, having missed a period of poor and wet weather in southern England during the latter half of July.

Our return was greeted with a shade temperature of 81 deg. F. the opening day of August, with plenty of Peacocks and Small Tortoiseshells on garden buddleias. But the weather changed materially when I motored to Towcester on the 4th, and little was moving in the dull and rainy conditions. However, things improved by the 7th when I surveyed the Chiddingfold region where both White Admirals and Silver-washed Fritillaries were still on the wing. Early on the morning of 10th August, Mr Russell Bretherton came over to Woking and we motored in ideal weather to Royston golf-course which was our halt for a picnic lunch. The only butterflies seen were *Aricia agestis* Schiff., *Maniola tithonus* L., *Thymelicus lineola* Ochs. and a handful of *Lysandra coridon* Poda, which was somewhat disappointing since this locality was at one time famous for the numbers and aberrations of this species. Our next halt was near Eriswell in the Breckland. I had remembered a large patch of *Silene otites* at the side of one of the principal roads and we were pleased to find it still flourishing. Searching the pods proved a blank, but we unearthed one full-fed larva of *Anepia irregularis* Hüfn., unfortunately stung. We then proceeded via Thetford and Norwich to the Barton Staithe Hotel on the Norfolk Broads where I had not stayed for many years. Mr J. Messenger had given us an introduction to Mr and Mrs Halfhead who were in resi-

dence at their delightful house and estate on the edge of Sutton Broad at Longmuir Point. They most kindly let us have full facilities for collecting with various types of apparatus including the plugging in of our static m.v. which we placed close to the huge reed-bed to very good advantage. Their garden was well sheltered by a small piece of woodland with large trees. We also ran two Heath lights right in among the reeds. But our first night was none too productive. The Heath lights, up till 11.30 p.m., provided many *Philudoria potatoaria* L. as well as single specimens of *Nonagria algae* Esp. (*cannae* Ochs.) and *N. dissoluta* Treits. Among 42 species that came to our static traps were four species of the Notodontidae including *Pheosia tremula* Clerck. *P. gnoma* Fab.; *Pterostoma palpina* Clerck and *Notodonta ziczac* L. Other more interesting insects were *Lymantria monacha* L., *Drepana binaria* Hufn., *D. lacertinaria* L., *Simyra venosa* Borkh., *Arenostola pygmina* Haworth, *A. phragmitidis* Hübn. in numbers, also *Coenobia rufa* Haworth, *Triphaena interjecta* Hübn., *Schranksia costae-strigalis* Stephens and the geometers *Acasis viretata* Hübn., *Abraxas grossulariata* L., *Selenia tetralunaria* Hufn. and *S. bilunaria* Esp.

August 11th was another glorious day when we revisited Longmoor Point and walked along a narrow path among the thick reedbed where there was almost a forest of *Peucedanum palustre*, the foodplant of the Swallow-tail. But no larvae were forthcoming and we concluded most had already pupated in the excessive heat of the previous weeks. Searching yellow loosestrife only yielded a single full-grown larva of *Anticollix sparsata* Treits. The night turned out much more propitious, though the Heath trap did not produce anything of real note. However, our static trap the next morning was a galaxy of some 175 insects comprising 63 species, nine of the Notodontidae with a couple of *Harpyia furcula* Clerck, *Clostera pigra* Hufn., and *C. curtula* L., also *Notodonta dromedarius* and *Lophopteryx capucina* L. Other species not previously recorded included *Laothoe populi* L., *Euproctis similis* L., *Arctia caja* L., *Eilema deplana* Esp., *Nonagria typhae* Thunb., *Gortyna micacea* Esp., *Apamea testacea* L., *Plusia chrysitis* L., *Sterrhia dimidiata* Hufn., *Ortholitha chenopodiata* L., *Lygris testata* L., *Eupithecia tenuiata* Hübn., *Dysstroma citrata* L., and *Biston betularia* L.

Another grand warm day greeted us on August 12, the morning of which we once more spent at Longmoor Point and had the good fortune to see and photograph a Swallow-tail feeding, with wings outspread, on a spike of buddleia, an unusual flower for this fine insect to patronise. We saw several others flying round the house and near the fen, while the Peacocks were also disporting themselves round the many flowering plants in the garden. That afternoon we went on a tour of reconnaissance to Hickling Broad, then via Horsey Mere to the sand dunes at Waxham which was our venue for night operations, but a cold wind got up and the marram

(to be continued)

## Notes on some of the British Nepticulidae II

By A. M. EMMET

(continued from page 80)

has now been published by Johansson (1971), and this is the basis of the notes which follow.

The *ruficapitella* group is now considered to comprise eleven species of which six or possibly seven have been recorded from Britain. The British species, which include two new to our list, are as follows:—

*Stigmella suberivora* Stainton 1869

*S. svenssoni* Johansson 1971 (*ruficapitella* Haw. auct. partim)

*S. basiguttella* Heinemann 1862

*S. atricapitella* Haworth 1829

*S. ruficapitella* Haworth 1829

?*S. samiatella* Zeller 1839

*S. roborella* Johansson 1971 (*ruficapitella* Haw. auct. partim)

At the time when Johansson's paper was written, *svenssoni* had not been recognised in Britain, but Borkowski has since found a specimen amongst the material I sent him for examination. The doubtful species is *S. samiatella* and I will explain below the slender evidence on which its claim rests.

Some of the species, especially in the male sex, are relatively easy to distinguish by their external features, but others, notably the red-headed females, are very similar and can only be determined with certainty by dissection of the genitalia. These organs are admirably illustrated and described by Johansson, and I must refer the reader who wishes to make genitalia preparations to his paper for the necessary information.

It may come as a bit of a shock to some microlepidopterists to learn that the males of *ruficapitella* normally have black heads; however, since the head is red in the female, Haworth's name still remains appropriate. It was this sexual dimorphism which led some entomologists (e.g. Meyrick, 1928) to believe that *atricapitella* and *ruficapitella* were one and the same species, red-heads and black-heads having been found in *copula*.

There follow provisional dichotomous tables for the determination of the two sexes. These are based partly on Johansson's descriptions and partly on the study of my own specimens which were kindly named for me by Borkowski after dissection. The tables are a cock-shy, and constructive criticism will be welcome.

## Key for the determination of oak-feeding Stigmellidae

## (a) Males

- |  |   |
|--|---|
| 1. With androconial scales on hindwing | 2 |
| Without androconial scales on hindwing | 4 |



- |  |                      |
|--|----------------------|
| 2. Head ferruginous                                  | <i>suberivora</i>    |
| Head black or brown                                  | 3                    |
| 3. Androconial scales two-thirds length of fringes   | <i>atricapitella</i> |
| Androconial scales one-third length of fringes       | <i>ruficapitella</i> |
| 4. Head ferruginous to orange                        | 5                    |
| Head black or dark to light brown                    | 6                    |
| 5. Hindwings mixed with a few brown or bronzy scales | <i>roborella</i>     |
| Hindwings without brown or bronzy scales             | <i>svenssoni</i>     |
| 6. Forewings with a yellowish basal spot             | <i>basiguttella</i>  |
| Forewings without yellowish basal spot               | <i>samiatella</i>    |
- (b) *Females*
- |  |                      |
|--|----------------------|
| 1. Head ferruginous .....                                    | 2                    |
| Head not ferruginous .....                                   | 5                    |
| 2. Antennal eyecaps concolorous with head .....              | <i>suberivora</i>    |
| Antennal eyecaps lighter than head .....                     | 3                    |
| 3. Hindwings mixed with brown or bronzy scales;              |                      |
| Ovipositor protrudes .....                                   | <i>roborella</i>     |
| Hindwings without brown or bronzy scales;                    |                      |
| Ovipositor does not protrude .....                           | 4                    |
| 4. Hindwings pale grey; <i>bursa copulatrix</i> with a large |                      |
| sclerotised plate .....                                      | <i>svenssoni</i>     |
| Hindwings darker shining grey; <i>bursa copulatrix</i>       |                      |
| without a large sclerotised plate .....                      | <i>ruficapitella</i> |
| 5. Forewings with a yellowish basal spot .....               | <i>basiguttella</i>  |
| Forewings without such a spot .....                          | 6                    |
| 6. Hindwings grey, mixed with bronzy scales; face            |                      |
| yellow .....   | <i>samiatella</i>    |
| Hindwings grey without such scales; face                     |                      |
| ochreous brown .....   | <i>atricapitella</i> |

These tables should make it possible for many specimens to be determined without dissection. Males of *svenssoni* and *roborella* and females of these two species and *ruficapitella* are the hardest to distinguish, and with these it is best to examine the genitalia. The androconial scales can be seen easily with a low-powered lens.

It is not yet known whether the larval mines will give constant characters for determination. The statement by the older entomologists that the mines of *atricapitella* and *ruficapitella* are indistinguishable is nugatory, being based on inadequate information. The only way to build up precise knowledge is for breeders to keep each individual larva in a separate container and to press the leaf as soon as it has vacated its mine. A reliable cross reference system must be established between bred imagines and the leaves in which their larvae fed. This is a laborious task, but essential if we are to learn the characteristics of the mines of each species. The descriptions of mines given below are based partly on Johansson's work and partly on my own observations; the



reader must accept the fact that our information in this area is still rudimentary, and should realise how desirable it is that he himself should add to our fund of knowledge.

We must also make a fresh start with mapping the distribution of each species. Past records for *atricapitella* may equally refer to *ruficapitella* or, just possibly, *samiatella*, while the records for *ruficapitella* may refer to that species, *roborella* or *svenssoni*. Every entomologist should therefore publish his records after he has determined his series correctly.

I shall now give more detailed descriptions of the species and their biology, but I shall not include *suberivora* and *basi-guttella* since they should pose no problems of identification either as larvae or imagines.

(1). *Stigmella atricapitella* Haworth. Head black in both sexes, face in the female conspicuously tawny-ochreous (Johansson ascribes this facial coloration to both sexes, but in my series it seems to be rare in the male). Eyecaps white. Collar dark brown in the male, white in the female. Forewings dark bronzy brown with a strong metallic gloss, towards the apex with a more or less pronounced bluish violet lustre. In the male the dorsum is clad with long, dark cilia almost to the base. Hindwings blackish grey, those of the male with conspicuously thickened androconial scales on the costa and dorsum, about three quarter the length of the fringes.

The mine is not described by Johansson, who states that it cannot be reliably separated from that of *ruficapitella*. I have bred this species from rather short broad mines with the frass packed in a thick, nearly solid, central line. The egg has been on the underside of the leaf in the confirmed *atricapitella* mines. The larva feeds on *Quercus robur*, *petraea* and *pubescens*.

*Distribution.* A common and widespread species, probably occurring throughout Britain.

(2). *Stigmella ruficapitella* Haworth. The head in the male is generally black but may be brown or even yellowish brown; in the female it is ferruginous to orange. The collar in the male is almost black in most cases, but may be white in lightish-headed specimens; in the female it is yellowish white to white. The eyecaps are yellowish white to white. The forewings are dark bronzy brown with less metallic gloss than in *atricapitella* and a less pronounced bluish violet lustre at the apex. The hindwings in the male are dark grey with androconial scales on the costa and dorsum one-third the length of the fringe; in the female they are medium grey and distinctly glossy.

According to Johansson, the mine is in most cases shorter than that of other oak-feeding species and often follows the margin of the leaf. On the other hand, my own authentic *ruficapitella* mines have been somewhat longer than those of

*atricapitella*; the frass has been more dispersed, each grain being separated from its neighbour. The egg has been laid on the upperside of the leaf. The larva feeds on *Quercus robur* and *petraea*.

*Distribution.* It seems to be as common and as widely distributed as the preceeding species.

Beirne's genitalia drawing of *atricapitella* in fact depicts this species.

(3). *Stigmella samiatella* Zeller. Sexes alike, head from black or dark brown to brown or yellow-brown; forehead yellow. Collar white. Antennal eyecaps white. Forewings dark bronzy brown with a strong metallic gloss on the apical area with a violet tint. Hindwings dark grey mixed with bronzy or violet scales, in the female sometimes somewhat lighter.

Johansson does not describe the mine, but from his drawing it appears closely to resemble that of *ruficapitella*. According to Hering (1957), the egg is on the underside of the leaf. The larva feeds on *Quercus robur*, *petraea*, *pubescens* and *Castanea sativa*.

This species was placed on the British list after vacated mines had been sent to Professor Hering and determined by him as those of *samiatella* (Parmenter, 1952). In the light of our recent advances in knowledge of this group, this evidence is no longer acceptable. However, *samiatella* is so common and widespread on the continent that Borkowski thinks it improbable that it does not also occur in Britain. He may well prove right. Yet I have examined over 300 specimens of this group in collections without finding a single *samiatella*. One must beware of examples of *basiguttella* with the basal pale spot more or less obsolete; these, since they lack androconial scales and have black heads with yellow faces, could readily be mistaken for *samiatella*. How easily such specimens of *basiguttella* may be misidentified is proved by the collections of two meticulous entomologists, Waters and L. T. Ford. The former had one and the latter no fewer than 18 specimens of *basiguttella* labelled as *atricapitella*. One of Beirne's *atricapitella* genitalia slides made from a Ford specimen is in fact *basiguttella*: how puzzled Beirne must have been!

(4). *Stigmella roborella* Johansson. Sexes alike. Head and forehead ferruginous to orange. Collar and antennal eyecaps white or yellowish white. Forewings rather dark bronzy brown with a faint metallic gloss. Hindwings pale grey mixed with a few brown or bronzy scales. In the female the ovipositor protrudes more than in the related species of the group.

The mine is relatively long and contorted and has the frass in rather a thin central line. The larva will feed on most species of deciduous oak.

*Distribution.* This is one of the commonest species on the continent, but appears to be less so in Britain. However, many

cabinet specimens labelled *ruficapitella* will be found to be *roborella*. Confirmed identifications show that it is widespread, but the preliminary indications are that it is only as common as the two preceeding species in the Midlands.

According to Johansson, Beirne's genitalia drawing of *ruficapitella* depicts *hemargyrella*, but it is improbable that even Beirne mistook a strongly fasciated species for a *ruficapitella*. The specimen was from Ford's collection and it is inconceivable that Ford should have made such a mistake. Unfortunately Ford was more interested in the quality of his cabinet specimens than their scientific value, and destroyed all those dissected (he would have said 'mutilated') by Beirne. In my opinion the figure depicts *roborella*, though it is not a very satisfactory representation.

(5). *Stigmella svenssoni* Johansson. Differs superficially from the preceeding species in the hindwings, which are paler, lacking the bronzy scales, and in the females because the ovipositor does not protrude. The genitalia are distinct in both sexes.

The mine has not yet been described.

*Distribution.* The species has been found on the continent in Sweden, Finland, Hungary and Italy. So far only two British specimens have been recognized. One of these I bred on the 15th May, 1969, from a larva collected the previous autumn at Madingley, Cambridgeshire; this specimen, dissected by Borkowski established *svenssoni* as a British insect and will, in due course, be placed in the British Museum (Natural History). The other was captured by Mr E. C. Pelham-Clinton at Ardnamurchan, Argyllshire. No doubt other specimens await discovery in collections, but it seems on our present evidence that this is a rare species.

Let me conclude this section with two brief notes on *Stigmella suberivora* Stainton.

(1). Although this species is generally considered to be univoltine (Waters 1928, Meyrick 1928, Ford 1949, Hering 1957), Wakely (1937) records finding tenanted mines on *Quercus ilex* in the Isle of Wight in mid-August and breeding an imago on the 2nd of September. As far as I know, this is the only record of a summer brood of *suberivora* and I failed in a search for larvae at a locality in Essex. I suggest that entomologists should keep a lookout for summer larvae and report them if they are found.

(2). An additional locality which reached me too late for my previous notes is Sittingbourne, Kent, where Dr Ian Watkinson reports finding the mines plentifully.

## B. *Ectoedemia* (*Dechtiria*)

*Ectoedemia* (Busck 1907) was formerly used as the generic name of a group of *Nepticula* mining petioles, but now has been extended to embrace the leaf-mining species of the genus



*Dechtria* (Beirne 1945) which it supersedes in obedience to the rule of priority. In this genus we have a new oak-feeding species, *Ectoedemia quercifoliae* Toll, 1937, to add to the British list and a life-history to be rewritten for *E. atrifrontella* Stainton, which was formerly supposed to feed on *Genista* (Meyrick 1928, Ford 1949).

In my previous notes (*Ent. Record* 83: 248) I stated that not all mines of the *subbimaculella* type had the characteristic slit in the cuticle of the leaf, which meant either that we had an additional species or that *subbimaculella*'s slit was optional.

Accordingly I made it my task in the autumn of 1971 to try to resolve this question. In some localities such as north-west Kent only typical *subbimaculella* mines were to be found, but in north Essex, mines without a slit were as common as those possessing that feature. An examination of the larvae within the mines showed without doubt that two species were present, for those in the slitless mines all had red-brown heads, as opposed to the blackish brown heads of the larvae in the mines which sported the slit cuticle. This distinction was constant and a division of a large sample of leaves (about 50 of each kind) on larval coloration yielded identical results to another based on mine form. Reference to Hering (1957) showed that the new species was *Ectoedemia quercifoliae* Toll.

I sent some of the mines to Dr Klimesch in Austria and he confirmed the determination but questioned whether *quercifoliae* was distinct from *E. albifasciella* Heinemann since the larvae look alike and the imagines are indistinguishable both in outward appearance and genitalia. In reply I gave three reasons why I thought they were separate species. They are as follows:

(i) Time of appearance. In England *albifasciella*'s larva feeds in green leaves in late August and early September, whereas *quercifoliae* feeds in "green islands" in withered or fallen leaves in late October and early November. *Albifasciella* has been demonstrated to be univoltine, so there is no question of *quercifoliae* being its second brood.

(ii) Structure of the mines. (a) *albifasciella*. The mine starts as a slender gallery following the veins with the frass in a fine central line leaving clear margins. This leads abruptly into a squarish blotch where the frass is deposited along one side or in a corner. The blotch is generally well away from the midrib and hardly ever occupies the angle between the midrib and a lateral vein.

(b) *quercifoliae*. The mine starts with a similar slender gallery but the line of frass is broad leaving no clear margins. The transition to a blotch is gradual, the latter being often elongated or formed in a series of contiguous 'S' turns. The frass is deposited in a dense black mass behind the larva as

(to be continued)



# The Subspecies and Forms of the Tailed Birdwing *Ornithoptera (Schönbergia) paradisea* Staudinger (Lepidoptera : Papilionidae)

By JAN P. HAUGUM, F.R.E.S.  
(Lundhusvej 33, 7100 Vejle, Denmark)

and ANDREW M. LOW, F.R.E.S.  
(Colne Mead, Mill Road, West Drayton, Middlesex)

## Introduction

During the process of investigating various taxa of the Ornithoptera for inclusion in a Monograph of the Birdwing-genera in preparation, some new forms of various status have been discovered. The authors consider that any description of new forms above that of individual variation should appear only in entomological periodicals, and propose therefore *herein* the following new subspecies of *O. (S) paradisea* Staudinger 1893. As to the individual forms, much confusion exists on the criteria of their validity. Within the genus Ornithoptera and its subgenera, to a lesser degree also within the allied genera Trogonoptera and Troides, a large scale confusion exists around the numerous forms and subspecies named previously. It is therefore necessary to establish descriptions of the normal fluctuation in the pattern of such variable species and subspecies, and this will be dealt with in the abovementioned Monograph. Most individual variations occurring in these genera appear to follow a more or less gradual change between two or more extremes, and can hence be enumerated in a graphic polygon and be statistically worked. Once the extremes are established, all names for "intermediate" forms may be considered unnecessary. Until now it has not been possible to identify and describe such series as thoroughly as is required, and for this reason alone the descriptions of the new individual forms identified by the present authors will appear solely in the Birdwing Monograph. The characters of a number of new forms are established, but we will, with a very few exceptions, desist from naming them until the complete range of normal variation has been investigated.

The Geographical Subspecies and Forms of *O. (S) paradisea* Staudinger, 1893.

The geographical distribution of *O. (S.) paradisea* presents us with some interesting problems. Until now all known specimens have been referred to either of three different subspecies.

1. *paradisea paradisea* Staudinger, 1893: Huon Peninsula to Astrolabe Bay in lowlands. This is the nominate subspecies and is well known.
2. *paradisea flavescens* Rothschild, 1897: Etna Bay, probably lowland. This is based on a sole female specimen and its status is doubtful.

3. *paradisea arfakensis* Joicey & Noakes, 1915: Arfak Mts. of the Vogelkop Peninsula, high altitude. This is a very distinct purely high-altitude subspecies, and the distribution is separated from that of the nominate subspecies by a waste area.

A study of museum material and certain recent specimens enables us to separate and describe a number of geographical subspecies of *O. (S.) paradisea*. All the new subspecies differ more or less distinctly from the type form, but most important is the discovery of geographical intermediates from higher altitudes. It is however, not yet possible to link the populations from the Central Ranges with those from the Northern Ranges and the Huon Peninsula, but indications are that we are now approaching a better understanding of the spreading of the ancestral forms of *paradisea* and its sole close relative, the peculiar *O. (S.) meridionalis* Rothschild, 1897 (see figure 1).

In the separation of the new forms, the pattern of the male abdomen is of importance: a *complex* median pattern occurs in typical *p. paradisea* from the lowlands. A *simple* median pattern occurs in the high-altitude forms from the Northern and Central Ranges. In the Northern specimens the median line is accompanied by a pale, whitish border, but no such border is present in the Central males recorded to date. Certain simple patterned males are known from the area inhabited by the typical form, but indications are that these are all medium to higher altitude specimens. We consider the following geographical subspecies:

1. The typical *paradisea paradisea*, inhabiting low altitudes in the Huon Peninsula to the west. The westernmost limit, which was formerly in the Astrolabe Bay area, is moved to East Sepik River. Abdomen with a complex pattern in the male sex, a little variable. Dorsal hair-fringes pale ochraceous to brownish.

- 1b. A small degenerate form of the above, inhabiting the southernmost (?) areas of the distribution of the nominate sp. (1). Status uncertain. Lowlands only.

2. *paradisea borchii*. This newly described subspecies occurs in the Central parts of the Northern Ranges: Toricelli and Alexander Mountains, and at Dreikir, East Sepik district, at altitudes from 1500 feet (rarely) 2000 to 3000 feet. Male abdomen with a simple median pattern, dorsal fringes snow white, outer margin of HW averaging straighter, additional golden and iridescent green spots present with a larger frequency than in the nominate subspecies. Females with modified wing-shape and pattern.

*Ornithoptera (Schönbergia) paradisea borchii* ssp. nov.

Holotype male: N.E. New Guinea: Toricelli Range, 2000 feet, 16 June 1973. FW: the wings appearing "narrower" than in the nominate subspecies, the wingspan being  $4\frac{5}{8}$ ", this character appears fairly constant in the high-altitude

specimens. Pattern and colouration very similar to *paradisea* *paradisea*, the iridescent green areas more yellowish and producing a brightly golden-yellow reflection. In the lower part of the median area is a diffused spot or patch of black scales within the Cubital band. Except for the abovementioned patch, the outlines of the coloured bands are more clean-cut and regular than in the nominate subspecies. The Subcostal green streak short but prominent, the Costal streak long and prominent. The basal portion of the Radial band streak-formed and pointed, reaching closer to the base than in average *p. paradisea* males. The Anal band broad, being as broad as the black area that separates it from the Cubital band: it ends abruptly at mid-dorsum, not being streak-like prolonged as in most *p. paradisea* males.

HW: very similar to *p. paradisea*, but inclined to be narrower towards the tornus. The black outer margin narrower at apex. The presence of a prominent patch of iridescent green scales at the base of the tail appears to be a fairly constant character in high-altitude specimens: in the type male this patch is, at base of tail, just as broad as the iridescent green which extends down the wing and onto the tail. Anal fringe of hair snow white. The HW cell-spot of flat semi-translucent golden scales modified in shape, its edge towards the dorsal margin being abruptly bent at an angle near its distal end, not being regularly curved as in the nominate subspecies.

Abdomen: It is in the abdomen where the major characters of this subspecies are evident. Median line simple, i.e. clear and clean-cut, not being complex as in *P. paradisea* (figure 2) dark greyish black and extending the full length of the abdomen to the last segment. The dark median line bordered with a relatively wide band of almost white scales gradually diminishing in width towards the apex: these white scales are relatively long and narrow and appear to have a somewhat waxy consistency. This scaling very dense, the scales curling inwards towards the median line. Remaining scaling of abdomen normal, clear brilliant light cadmium yellow. Along the upper margin or base of tergites 3 and 4 the general scaling is inclined to become somewhat sparse, leaving an extremely narrow border of shining black chitin: this appears also to a much lesser degree at the base of the second tergite.

Length of forewing:  $2\frac{1}{2}$ ", length of Hindwing including tail 2".

Allotype female: FW similar to *p. paradisea* but markedly broader from costa to tornus, the wing thereby attaining a somewhat different shape. The subapical row of white spots prominent, all spots as long as in the nominate subspecies but broader. The discal markings consist of the usual two white patches, the lower of which is large and not diffused by dark scaling at edges, and a third smaller spot beneath them. The submarginal row as in *p. paradisea*. The cell-spot longer than



broad, unsymmetrical, being bi-parted on the left wing, three-parted on the right. HW: markedly more dentate along the termen than in *p. paradisea*, this character particularly prominent at the termination of veins 4 and 5 (figure 3). Posterior edge of blackish-brown area at the base less complex in pattern than that of the nominate subspecies, marginal black broader. Within the pale band the overall diffusion of scattered brownish scales extends well into the discoidal area, leaving only a relatively small area of cream-coloured scales at the disc. The central row of black spots large and prominent, the spots larger than in average *p. paradisea*. Especially the spot above the anal angle is prominently enlarged. This character is reminiscent of *O. (S.) meridionalis* (figure 3).

Abdomen pale bistre, immaculate without any median line or smudge.

Wingspan  $5\frac{1}{2}$ ", length of FW  $3\frac{1}{2}$ ", breadth at widest point 2".

3. (no name) (Form or subspecies?) Inhabiting western parts of Central Ranges at higher altitudes: Snow Mts. Male specimens have the abdomen with a simple median pattern consisting of a dark median line *without* the pale border. Base or upper margins of tergites 3 and 4 without a dark line. The status of these interesting specimens remains uncertain.

3b. The "subspecies" *flavescens* Rothschild from Etna Bay, is based on a single female specimen which apparently is only an individual variation. Status uncertain, but indications are that it may be connected to the above 3.

4b. (no name) clinal form or subspecies? Inhabiting the areas south of Geelwink Bay, in vicinity of Wangaar, at higher altitudes. Only known in female sex, but several specimens known. It is somewhat intermediate, but has stronger affinities to ssp. *arfakensis*. This explains why we hesitate to see this form in connection with no. 3, which is otherwise closer geographically. Status remains uncertain.

4. *paradisea arfakensis* Joicey & Noakes 1915. The very distinct subspecies from Arfak Mts. Higher altitudes only.

### Conclusions

All specimens hereto known of the tailed species *Ornithoptera* (*Schönbergia*) *paradisea* have been referred to either the nominate subspecies from lowlands in N.E. New Guinea, or to the high-altitude ssp. *arfakensis* from western New Guinea. A third "subspecies", *flavescens* Rothsch. is only known in one female specimen. Recent studies necessitate a re-arrangement of the various forms, inasmuch as diverging geographical populations have been discovered. One new subspecies is described from higher altitudes in the Northern Ranges: Toricelli. The name *flavescens* may, when correct status of the new taxa are established, remain that of an individual female form. A new geographical form, which is not named, is recorded from areas between that of ssp. *arfakensis* and the last mentioned. The briefness of this paper is explained by

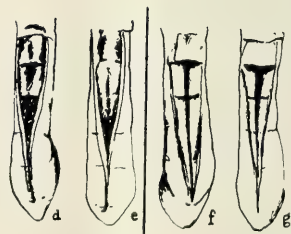
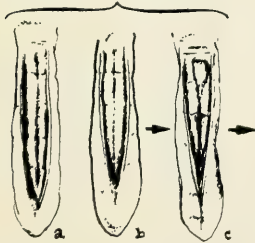




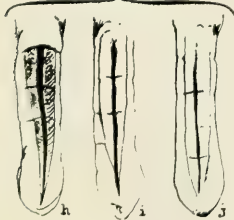


Fig. 1

**1** complex pattern  
typical *p. paradisea*



**2** simple pattern  
*sap. borchii*



**3** simple pattern  
central form

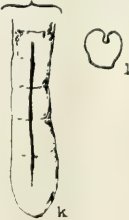


Fig. 2.

the presence of a Monograph covering all Birdwing genera and species which is in preparation and will soon be published. We refer the interested readers to this work for further particulars. The types of the new subspecies are at present in coll. Low, but will eventually be placed in the British Museum (Nat. Hist.).

The other geographical forms are represented in Brit. Mus. (Nat. Hist.) at South Kensington. The geographic occurrences and altitudes of the forms are related in figure 4. The figures being modified from the Monograph, which work will also contain reproductions of the new subspecies.

#### TEXT TO THE FIGURES

Fig. 1. Reconstructed spreading of ancestral *paradisea* and *meridionalis* forms inhabiting the great Central Ranges, to present populations of the two species. Recent observations indicate that the spreading of *p. paradisea* may not have taken place through East Papua north to Finisterre Mts. (as indicated by a broken line), but north to the northern coastal Ranges from Central Dutch New Guinea. The geographical forms enlisted in the text as 3, 3B, and 4B remain closest to the hypothetical ancestral area of origin.

Fig. 2. Pattern of Male Abdomen in the Geographical Forms of *O. (S.) paradisea*

1: *The complex-type pattern of the typical paradisea paradisea*

Fig. a to g: The lowland form complex pattern is a little variable in details, but the average specimens are patterned as fig. a to c: in a few examples the upper portion of the median line is more or less dissolved or becoming diffuse (fig. c). In rare examples it becomes slightly modified, the upper parts being fused with the "border" (fig. e). The lower part of the complex pattern is always pointed, and in some examples an increase of black scaling forms a long dark pointed triangle by fusion of the median line and the borders, (fig. c, e), which triangle may rarely cover the complete length of a segment or more (fig. d). In a very few specimens the uppermost portion of the pattern is reduced and hence of a much less complex type, the black scaling being intensified at the interstices, the borders much less defined: such males have rarely been recorded from the area of occurrence of the typical form, but have probably come from higher altitudes. Such specimens may be referred to spp. *borchi*, of which they form the easternmost and specialized occurrences.

2 and 3: *The simple-type pattern of the higher-altitude forms*

Fig. h to j: pattern of ssp. *borchi*, a simple median line accompanied by a border of pale curled scales. The orientation of the pale curled scales are shown in fig. h, and must not be mistaken for dark scales. Fig. k: the simple-type pattern known for the very few males recorded from the western Central Highlands. A simple median line without any border. It should be noticed that in many specimens the partial or complete collapse of the chitin of the sensory areas (which are particularly evident in this species) can be very misleading, altering the actual appearance of the pattern. Apart from the usual lateral distortions sustained by the drying out of the abdomen, the relatively thin chitin of the sensory area often collapses downwards—forming a deep groove down the back of the abdomen. This depression often reaching a marked degree, especially towards the last segments (fig. l, a section-cut through the middle of the abdomen).

*Data of specimens figured:*

- |                                    |                                     |
|------------------------------------|-------------------------------------|
| a: Gwelin Range, E. Sepik, 700 ft. | h: Toricelli Range, 2,000 ft.       |
| b: no data, German N.G.            | j: Prince Alexander Range 1,500 ft. |
| c: Finisterre Mts., low altitude   | j: Prince Alexander Range 1,500 ft. |
| d: Finisterre Mts., low altitude   |                                     |
| e: no data, German N.G.            |                                     |
| f: no data, German N.G.            | k: Snow Mts.                        |
| g: Stephansort                     |                                     |

Fig. 3. Female hindwing-pattern and shape, simplified. a and b are typical *paradisea paradisea*, the figure a representing Pagenstecher's = Staudinger's typus, figure c representing *paradisea borschi* type specimen

Fig. 4. Geographical distribution and altitudes of *O. (S.) paradisea*. The small insert map (top right) indicates previous recorded occurrences. The arrows on the main map indicate probable distribution of the forms: a dotted line indicates probable former or present clines. Notice that the arrows do not indicate the direction of the spreading of the ancestral forms, see map, fig. 1. Notice also geographical overlap of subspecies 1 and 2

## New Records of Lepidoptera in Malformed Inflorescence of Mango in the Punjab

By G. S. SANDHU AND JOGINDER SINGH

(Dept. of Entomology, Punjab Agricultural University, Ludhiana)

Mango malformation, both floral and vegetative is a complex and serious malady throughout India. Affected inflorescence due to atypical growth, turns into a thick fluffy black mass. Many insects hide in such heads but very little information is available on insects breeding inside the diseased inflorescence. It is however important to have data on the role of such sources in harbouring different pests.

During 1971-72, three lepidopterous insects were reared from malformed flowers. A small brownish moth *Pyroderces* sp. (*Cosmopterygidae*) was most abundant constituting 80 per cent of emerged moths followed by a grey yellowish moth, *Hypsipygia mauritialis* Boisd. (*Pyralidae*) while *Dichrocrocis punctiferalis* Gn. (*Pyralidae*) with deep brilliant yellow wings having conspicuous black dots constituted 5-7 per cent of the moth population. *Dichrocrocis punctiferalis* Gn. was reported by Fletcher (1914) infesting mango flowers, outside Southern India (probably he referred to malformed flowers). The others have not been reported so far. So malformed heads acted as unwanted reservoirs of pest breeding. Removal of malformed inflorescence of mango is a standard recommendation for minimising the disease. Present information further emphasises their removal and proper disposal as well, because *Pyroderces* sp. and *D. punctiferalis* are pests of other crops also.

Authors thank Director British Museum (N.H.) London, for insect identification and Dr O. S. Bindra, Professor and Head, Department of Entomology, for facilities.

### REFERENCE

- Fletcher, T. B. (1914). *Some South Indian insects and other animals of economic importance*. Supdt. Govt. Press, Madras, p. 433.





Fig. 3

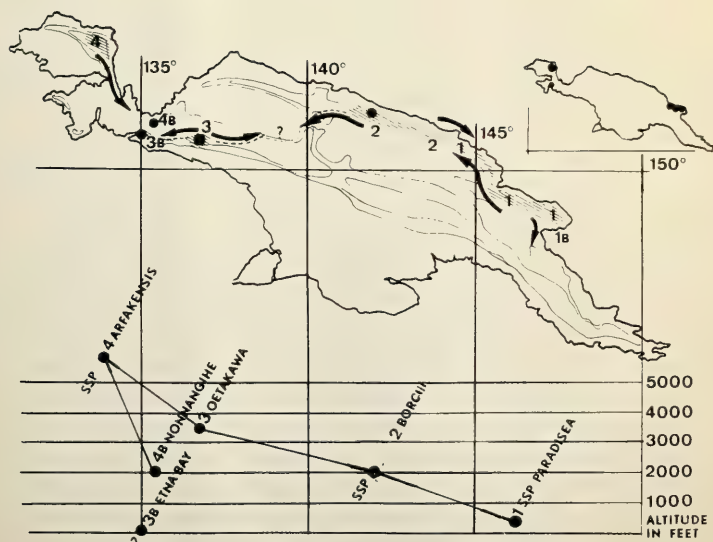


Fig. 4



# New Forest Mercury Vapour Light Records for 1973

By L. W. SIGGS

(Sungate, Football Green, Minstead, Lyndhurst, Hants.)

After the disappointment of the last two years, the better summer weather of 1973 brought a notable increase in at least some of the macrolepidoptera. The following figures may be compared with my Report for 1972 and earlier years (*Ent. Rec.* 84: 92).

	Nights	Specimens		Species
		Total	Average	Average
March	24	1023	48	7
April	29	2490	86	8
May	31	875	28	12
June	29	3633	125	36
July	30	11152	372	49
August	31	13264	428	42
September	27	3164	116	16
October	29	814	28	9
November	11	277	25	6

The improvement did not occur until July and August with a record average catch in both those months. The total number of species recorded during the year was 333.

Those species which turned up in numbers which were substantially higher than in previous years are detailed below, showing in brackets the previous best since 1961.

*Noctua pronuba* L. 9607 (4168)

*Noctua (Euschesis) comes* Hubn. 315 (220)

*Noctua (Euschesis) janthina* Schiff. 1074 (505)

*Noctua (Euschesis) interjecta* Hubn. 163 (76)

*Xestia (Amathes) xanthographa* Schiff. 447 (357)

*Xestia (Amathes) sexstrigata* Haw. 242 (148)

*Xestia (Amathes) triangulum* Hufn. 208 (178)

*Diarsia brunnea* Schiff. 126 (103)

*Bena prasinana* L. 58 (43)

*Lycophotia porphyrea* Schiff. (*varia* Vill.) 2628 (1276)

*Habrosyne pyritoides* Hufn. 601 (312)

*Paradiarsia (Amathes) glareosa* Esp. 55 (37)

*Omphaloscelis lunosa* Haw. 121 (41)

*Agrochola (Anchoscelis) helvola* L. 175 (152)

*Autographa (Plusia) gamma* L. 1323 (975)

*Cyclophora (Cosymbia) linearia* Hubn. 70 (13)

*Eupithecia nanata* Hubn. 172 (142)

It is interesting to note that four species of the genus *Noctua* are included, three of them (*pronuba*, *janthina* and *interjecta*) more than doubling the previous record.

There were three additions to the Minstead list:—

*Scotopteryx (Ortholitha) chenopodiata* L.

*Hyles (Celerio) gallii* Rott. (see *Ent. Rec.* **85**: 225)

*Autographa (Plusia) bractea* L. (see ditto.)

(Correction:—The addition in the 1972 list (*Ent. Rec.* **84**: 93) shown as *Perizoma didymata* L. should read *Perizoma bifaciata* Haw.

The following species, which are not common here, were recorded:—*Xylena vetusta* Hubn., *Anaplectoides prasina* Schiff., *Hypena crassalis* Fab. (*Bomolocha fontis* Thunb.), *Idaea (Sterrha) seriata* Schranck, *Arenostola phragmitidis* Hubn., *Euxoa nigricans* L. *Mesoligia (Procus) literosa* Haw., *Mesoleuca albicillata* L. (a small, somewhat worn specimen with no border to the hindwings), *Aporophyla lutulenta* Schiff., *Chesias legatella* Schiff.

MIGRANTS. After three poor years for migrants, 1973 saw a great improvement. The following were recorded:—

*Autographa (Plusia) gamma* L. (1323) including a melanistic variety, ab. *nigricans* Spuler.

*Plutella xylostella* L. (*maculipennis* Curt.) (21)

*Peridroma saucia* Hubn. (*porphyrea* Edelen) (36)

*Agrotis ipsilon* Hufn. (97)

*Herse convolvuli* L. (1)

*Rhodometra sacraria* L. (4)

*Nomophila noctuella* Schiff. (10)

*Orthonama (Nycterosea) obstipata* Fab. (3)

*Hyles (Celerio) gallii* Rott. (1) (see above)

*Lithosia quadra* L. (7)

*Udea ferrugalis* Hubn. (1)

Perhaps *Autographa (Plusia) bractea* L. (1) was a migrant.

#### POLYMORPHISM

*Biston betularia* L.

typical 130 (86%)

*carbonaria* 10 ( 7%)

*insularia* 11 ( 7%)

*Idaea (Sterrha) aversata* L.

*remutata* 89 (65%)

*aversata* 47 (35%)

*Xanthorhoe ferrugata* (Clerck). One specimen of the red form, the first I have seen in the 1400 specimens recorded over the years.

*Apamea crenata* Hufn. typical 7, ab. *alpecurus* Esp. 4, ab. *combusta* Hubn. 11.

*Alcis repandata* L. typical 70, ab. *consonaria* Hubn. 2.

*Eilema deplana* Esp. typical 10, ab. *unicolor* 9.

*Eilema griseola* Hubn. typical 7, ab. *flava* Haw. 3.

*Semiothisa liturata* Clerck typical 22, ab. *nigrofulvata* 1.

## A Plea for Hardwoods

By J. P. SANKEY-BARKER

(Plas Llangattock, Crickhowell, Breconshire)

Postwar development has wrought many changes in our landscape — mostly for the worse. One of the more regret-



table has been due to the extensive felling of hardwood trees. Whole woodlands of these have been cleared, to be replanted almost exclusively with conifers, while hedgerow trees and small ornamental clumps planted mainly for amenity have been ruthlessly laid low, and others all too seldom planted in their place. Moreover, the felling continues unabated. Despite the slogan "Plant a Tree in '73" more hardwoods were felled last year—at least in these parts—than were planted.

This process, if persisted in, is bound to lead to a grave diminution of our native fauna and flora, and none more so in regard to lepidoptera with which aspect this article is chiefly concerned. To take the oak, for example, the principle component of so many woods throughout Britain. According to Scorer (*Entomologist's Log-Book*) and Ford (*Guide to the Smaller British Lepidoptera*) this tree is the food-plant for the larvae of 190 species of butterflies and moths, 92 being either scarce or local. Indeed, the larvae of 68 species solely depend on it, and of these no less than 45 are local or rare. Among them *Thecla quercus* L. (Purple Hairstreak), *Catocala sponsa* L. (Dark Crimson Underwing), *C. promissa* D. & S. (Light Crimson Underwing), *Polyplocia ridens* Fab. (Frosted Green), *Moma alpium* Osbeck (Scarce Merveille du Jour), *Dicycla oo* L. (Heart Moth), *Microthrix similella* Zincken, *Acrobasis tumidana* D. & S., *Phyllonorycter muelleriella* Z., and *Caloptilia leucapennella* Stephens are but a few of the more vulnerable. Moreover, the list does not include a number of lepidoptera which though they may not feed on oak are probably dependant upon it in some way or other during part of their life-cycle. Such are *Apatura iris* (Purple Emperor) whose males — as is well-known — resort to high oaks over which they fly and rest, and among the moths *Mitochondria miniata* Forster (Rosy Footman) whose larva feeds on *Algae* growing on oaks.

What applies to the oak applies in some degree to most other hardwoods — to the wych-elm for instance, the foodplant of the decidedly local and in many places far from common *Strymonidia w-album* Knock (White-letter Hairstreak), which may become even scarcer as a consequence of elm disease. There is also the vast number of lepidoptera, some of considerable rarity, which depend on the lesser growths which flourish in the rich humus and light shade provided by most large hardwoods, and conspicuously *not* by evergreen conifers.

Lepidoptera, however, are but one out of the many forms of life more or less dependant on hardwoods, and the probable extinction of certain species of these but a part of the ecological impoverishment which will occur should wholesale felling continue. It therefore behoves all genuinely concerned with the conservation of our native fauna and flora to demand that this destructive process be halted forthwith and more hardwoods planted, especially oak so as to make good previous wastage.

## On the Reported Occurrence of *Maculinea arion* L. in South West Ireland

By MARK JEFFARES

(34 Highfield Road, Rathgar, Dublin 6)

I wish to state that Mr H. C. Huggins (*Ent. Rec.*, **85**: 236) is not the sole survivor of the Large Blue investigation, for I am the "youth" who originally consulted Mr E. S. A. Baynes on finding the insect in Co. Cork, and I still have his letters to me on the subject.

In the year in question, I believe 1962, I found about a dozen or so large bluish butterflies which I now believe to be *M. arion*. I managed to catch and, unfortunately, kill two specimens of this insect which was flying quite slowly in the open space immediately adjacent to the ruins of Dunboy Castle, Castledown, Bearhaven, Co. Cork. Being only a novice at the time (aged about 11 but with 4 years interest), I caught and killed the two specimens and placed them between leaves of a small pocket diary, having no other container than this. After a few days I lost interest in the rather crushed insects and threw them away. Both my parents were present at the time and vaguely remember the insects caught. I can remember them quite clearly to this day and on later seeing the illustration in the *Observer's Book of Butterflies*, I was convinced that I had seen the Large Blue. I can even remember seeing some specimens with larger black markings on the upperside of the forewings, these being females. I decided to obtain more information which I got from Mr Baynes on the status of the insect in Ireland.

Not being a botanist, I could not say whether or not its foodplant Wild Thyme grew there, but I was assured by Mr Baynes who subsequently visited the spot that it did not. As a result I dropped the matter, feeling that as Mr Baynes knew of my observations no useful purpose would be served by publication. Since then, however, on gaining more experience I became convinced that it could have been none of the possible alternatives that Baynes suggested such as *Polyommatus icarus clara* Tutt (which was abundant at this locality) or *Anaitis plagiata* L. (Treble-bar), but that the insect I took was in fact *M. arion*. Incidentally, I have since caught *A. plagiata* at Glengariff, Co. Cork, but not at Dunboy which I subsequently revisited most years during the first two weeks of August. As I have since found no trace of *M. arion*, I can only presume that this may be an instance of an isolated colony dying out—hopefully not through my killing two specimens for which I have never forgiven myself.



PLATE VIII



**P. B. M. ALLAN**  
in 1958



# Obituary

PHILIP BERTRAM MURRAY ALLAN,  
M.B.E., M.A., F.S.A., F.R.E.S.

The death occurred on 31st December 1973 at the age of 89, of Mr P. B. M. Allan well-known to readers of *The Entomologist's Record* as a contributor for many years under his own name and under the nom de plume 'An Old Moth-Hunter', or over the initials 'O.M.H.'

In 1950 when the future of the *Record* was uncertain and in danger of ceasing publication through lack of support Allan took over the management and publication, a task he was well-fitted to undertake having been a London publisher and author since the first world war.

Under its new management and an active Editor and Editorial Board, the *Record* soon started to revive and was improved in many ways. 'Features' which had proved popular under Tutt's management were revived, many of them being written each month by Allan himself. Some of the foremost entomologists generously supported the new regime, the circulation thence rising to a satisfactory figure within a year. For the June 1951 issue Allan designed a new cover and this has been the outward manifestation of the *Record* ever since.

Having seen the magazine, for which he had a great affection, well-established once more on a sound financial basis, Allan brought his period of management of *The Entomologist's Record* to an end but he continued to contribute notes and articles from time to time.

Philip Allan was the author of three books, *A Moth-Hunter's Gossip*, *Talking of Moths* and *Moths and Memories*, all written in lighter vein but still with the intention of stimulating deep thought into the many interesting problems presented by the Lepidoptera, for his early training in medicine and biology had provided him with a penetrating mind and his country upbringing in Berkshire had engendered keen powers of observation. No doubt he owed his very early interest in the Lepidoptera to his father's tutelage, for he was also a 'moth-hunter' and a most painstaking observer of nature.

Philip Allan was educated at Charterhouse and Clare College, Cambridge, where he took his M.A. degree in science, but he soon decided that a medical career was not for him and entered the publishing world where his love of books found full play. About 1912, having become interested in the sources of mediaeval history while at Cambridge, he became a contributor to a dictionary of Mediaeval Latin, for which researches he was elected a Fellow of the Society of Antiquaries in 1921.

After service in the London Scottish and in Military Intelligence during the first war, he returned to publishing and, at the request of the Home Office, founded *The Police Journal*, which he continued to edit and publish for 30 years. In 1937 he also founded *The Journal of Criminal Law* which he ran until late in 1972.

Between the wars, Allan found time to indulge his love of entomology again to the full, living as he then was on the borders of Hertfordshire and Essex, and in 1935 he was a co-founder of the Bishop's Stortford and District Natural History Society. Shortly after the second war he was appointed a member of a local National Trust committee charged with the care of Hatfield Forest.

So, the Old Moth-Hunter is no more! But though his pen is now laid aside, perhaps through his writings he will continue to recall, for others, happy days in the fields and woodland glades in pursuit of their mutual interest in entomology.

J.A.

## Notes and Observations

**POLYOMMATUS ICARUS ROTTEMBURG (LEP.: LYCAENIDAE) IN SHETLAND.**—Only a few hours before returning from a holiday in Shetland on 25th August 1973, I was delighted to see a male specimen of *P. icarus* Rott. flying over steeply sloping coastal ground at Spiggie on the South Mainland of Shetland. In half an hour I saw a total of two males and two females. One female I observed was ovipositing on *Lotus corniculatus* within a few feet of a young fulmar on nest (the latter was protesting loudly at my intrusion). The other female was secured and I could detect no obvious difference in this example from the univoltine race on the Scottish mainland. This specimen is now in the British Museum collection. The only other record was a male butterfly taken on the dunes at Sumburgh by Mr B. Goater in August 1968. (*Ent. Gaz.*, **20**: 79).—Dr M. W. Harper, Cotham, Upperfields, Ledbury, Herefordshire.

**A REMARKABLE EMERGENCE.**—During the evening of the 21st February a little electricity was used to see how the moths were emerging in this mild winter. As expected there were plenty of *Alsophila aescularia* (D. & S.) *Apocheima hispidaria* (D. & S.) and *pilosaria* (D. & S.) with odd *Agriopis leucophaearia* (D. & S.) and *A. marginaria* (Fab.) but a specimen of *Ochropleura plecta* (Linn.) was a complete surprise.—R. FAIRCLOUGH, Blencathra, Deanoak Lane, Leigh, Reigate, Surrey, 22.ii.1974,

**ETAINIA SPHENDAMNI** HERING — A CORRECTION. — In my key for the determination of the species of *Etainia* (*Ent Record*: 85: 281) I stated that the males of *sericopeza* Zeller and *sphendamni* lacked androconial scales on the hind-wing. More than a year has passed since I wrote those notes and in the interval I have bred and set further specimens of *sphendamni*. In doing so I have learnt that the male hind-wing does, in fact, have a basal patch of androconial scales on the upperside, but it is very small and completely overlapped by the forewing in set specimens. The same may well be true of *sericopeza*. Accordingly I have emended my own copy of the article (p. 281 ll 3-4) to read "Male hindwings with androconial scales on the upperside hidden by forewings". These androconial scales show conspicuously in set specimens of *decentella* Herrich Schaffer, so the character is still a useful mark of distinction.

The new edition of the Kloet and Hincks *Check List of British Lepidoptera* gives the following synonymy:—

- sericopeza* (Zeller, 1839)
- ? *louisella* (Sircom 1849)
- sphendamni* (Hering 1934)

It is quite certain that *louisella* is one or other of these two species. If I am right in my belief that *sericopeza* does not occur in Britain, it must be *sphendamni*. In that case it is the senior name for that species and *sphendamni* is reduced to synonymy. I am informed that Sircom's collection is in the museum at Bristol but (I hope this is incorrect) that it is not available for study: an examination of Sircom's specimens should settle the matter.—A. M. Emmet, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex, 10.ii.1974.

**THERA JUNIPERATA** L. (LEP.: GEOMETRIDAE) COMES NORTH.—When we published the Revised Yorkshire List (*The Lepidoptera of Yorkshire reprinted from The Naturalist 1967-70*) all there was to say about this species was "Not recorded since Porritt's List". Porritt only recorded two specimens, one at Birstwith in Nidderdale in 1885 and one at Acklam near Middlesbrough in 1900. The latter was thought to have been "imported with juniper bushes in churchyard".

There is no evidence that anyone has tried to follow up either of these localities and the species was not recorded again in Yorkshire until 1968 when Dr I. J. Faulkner, operating a Rothamsted trap at Harrogate took specimens on 15th and 22nd October, a fact recorded among other Stop-Press items on the last page of the aforementioned publication; they were of the large Southern form not the dwarf Scottish race. In the years 1956 to 1966 I had operated a Robinson trap regularly in Harrogate and never seen the species, nor did Dr Faulkner see it again for four years but he tells me that it turned up again this year on 4th November.



The moth is almost as scarce on the West side of the Pennines, the Ellis/Mansbridge list for Lancashire and Cheshire published by the Lancashire and Cheshire Entomological Society in 1940 gives no record for Cheshire and refers to it as "scarce and local about juniper in N. Lancs (Silverdale and Warton)". Rev. J. H. Vine-Hall worked Hutton Roof Crag, a few miles East of these localities, until a few years ago and has told me that he never took it there in spite of an extensive expanse of wild juniper.

I was therefore surprised and delighted to find a specimen on my lighted front door on 27th October 1973 and felt sure I had a new County record. However, on checking with Mr Alan Creaser, the secretary of the Lancashire and Cheshire Entomological Society, I found that he had forestalled me by three days, taking a specimen at Leasowe in the Wirral. I then checked with Monk's Wood who put me in touch with Mr R. Tratt of Wistaston, near Crewe, who took two specimens in October 1970 and several in 1971!

Our suspicions are similar to those of Mr Elgee of Acklam. Harrogate, Alderley Edge, Leasowe and Wistaston are all residential areas with plenty of large gardens. Present day attempts to reduce the labour involved in maintaining such gardens has led to much planting of shrubs, juniper among them. The conclusion is obvious, it only remains to find the larvae!—C. I. RUTHERFORD, Longridge, Macclesfield Road, Alderley Edge, Cheshire, SK9 7BL.

NEPTICULA AENEELA HEINEMANN AS DISTINCT FROM N. OXYACANTHELLA STANTON.—In my *Notes on some of the British Nepticulidae* II currently appearing in *The Entomologist's Record*, I invited readers in this country and on the continent to give their opinions on whether *aeneella* and *oxyacanthella* were distinct (*Ent. Rec.*, **85**: 176). I have received a most interesting letter on the subject from Mr B. J. Lempke of Holland. He refers to the Dutch handbook on Lepidoptera *Der Vlinders van Nederland* by P. T. C. Snellen (1882). Snellen, who was in close touch with the leading entomologists of his day and exchanged specimens with them, gives a description of *aeneella* and a comparison between it and *oxyacanthella* which correspond very closely with those I gave based on material in the British Museum (Natural History): moreover, Snellen's descriptions were made from fresh material received from Albarda and von Heinemann himself. Mr Lempke adds his own judgement that "it is quite clear that *oxyacanthella* and *aeneella* are different species".

Snellen describes *aeneella* as feeding on *Malus* and *Pyrus*, and *oxyacanthella* as feeding on *Crataegus*, *Malus* and *Sorbus aucuparia*. He thought he once found larvae of *aeneella*; they were "green caterpillars on apple, in mines like those of *oxyacanthella* but broader at the end and with the frass less distinctly arranged in a spiral". This is the fullest description



we have of the mine of *aeneella*, but as the moths were not bred we cannot be quite sure of the determination.

I am most grateful to Mr Lempke for his letter which adds weight to the opinions I expressed, viz. (a) *aeneella* and *oxyacanthella* are distinct; (b) modern continental microlepidopterists have lost sight of *aeneella* and are confusing apple-feeding *oxyacanthella* with it; and (c) there is no valid evidence for the occurrence of *aeneella* in Britain.—A. M. EMMET, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex, 31.i.1974.

**INFERTILITY IN FEMALE HYLES GALLII ROTT.**— On 25th July 1961 I trapped at Ottershaw, Surrey a female *H. gallii* which was in fair condition, almost certainly an immigrant, since eight other examples were recorded in widely distant places between 21st July and 1st August (French, *Entomologist*, **96**: 36). It was kept for eggs but laid none for nine days; when on point of natural death it produced 35, which proved infertile, and I judged from its appearance that many more remained in the body. I see that in the October number there are two other reports (*Ent. Rec.*, **85**: 247) of infertile females caught at light in 1973; and I have heard of similar disappointments, besides my own, in earlier years. It looks, therefore, as if Mr K. G. W. Evans' suggestion (*Ent. Rec.*, **85**: 298) that females of the *Sphingidae* will not fly until they have been mated cannot be sustained in the case of *H. gallii*; and that the fact that his example taken at Sandwich on 10th August was barren gives no clue to whether it was immigrant or locally bred. The records of other probable immigrants, for example of *Eurois occulta* (L.), show that females are often infertile when caught in Britain, the migratory urge (or is it just a strong favourable wind?) apparently overtakes them before a male has found them, and the chance that this will happen after they have been dispersed by migration is obviously small, though Mr J. Briggs has reported a slightly assisted case of this in the October number.

In conclusion, may I register a heartfelt though no doubt unavailing protest at the recent substitution of "*aallii* Rottemburg, 1775" for the "*galii* Denis and Schiffermuller, 1775" as the necessary name for this species? No doubt the authors of the new Kloet and Hincks have done their homework correctly and have found that Rottemburg did spell it like that and that under the international rules he has the priority. But for both authors the reference is clearly to *Galium* L. the most usual food-plant of the species, and it seems absurd that the school-boy spelling howler of Rottemburg or his printer should after two centuries be revived and immortalised to give a meaningless Gallic suggestion. Surely the international rules can do better than that or, if they cannot, their interpreters should use a sensible discretion.—R. F. Bretherton, Folly Hill, Birtley Green, Bramley, Guildford, Surrey, GU5, 0LE, 13.ii.74.

MIGRANTS IN 1973 — Sad to say I missed the two main migrant periods in Gloucestershire, in late July and early September. I left home for Shetland on July 18th and no *Hyles gallii* Rott. came my way. In September, however, I was lucky enough to be in Cornwall, where things were different. On the nights of August 26th and 27th I was staying with friends at Boscastle and ran two traps, one at their house, high on the hill above Boscastle, and the other low in the valley at Crackington Haven. The night of August 26th was very warm and *Plusia gamma* L. swarmed in both traps, possibly 1000 plus at Boscastle and 2000 plus at Crackington. In addition Boscastle produced one *Leucania vitellina* Hübn and Crackington one *Agrius convolvuli* L. Next night conditions were much less favourable and the Silver Ys had mostly moved on, though a second *Convolvulus* Hawk appeared at Crackington.

Next day, 28th I moved down to a farmhouse on the Lizard peninsular, to be greeted again by *A. convolvuli* and *L. vitellina*, both at my second trap which I was running on the coast not far away. I then had to return home to visit an aged aunt who had had a serious fall. I returned to S. Cornwall on September 4th, giving up a projected visit to Scilly in order to be on call. I now ran three traps, one at my farm, another on the coast, and a Heath Trap on an inland heather moor. During the period September 4-9th, I saw two more *A. convolvuli*, two *H. armigera* Hübn., September 5th, 9th and 6 *L. vitellina*, one *L. l-album* L., which I consider to be a true migrant, never having seen it before in this area, which I have visited regularly for a number of years, and 5 *Rhodometra sacraria* L. During the nights of September 7th, 8th and 9th my coastal trap was filled with innumerable *P. gamma*, to the exclusion, it seemed, of anything more desirable. My days were spent surf-bathing and bird watching and I am afraid I did little with the butterflies, though it may be of interest to note that I saw *Cynthia cardui* L. singles, possibly the same individual, at the Portland Bird Observatory on September 23th, 30th. — Austin Richardson, Beaudesert Park, Minchinhampton, Glos.

SWARMING OF *TIPULA LUNATA* L. (DIPTERA: TIPULINAE) AT LODE, CAMBRIDGESHIRE. — On the 11th June 1973 at about 9 p.m. on a warm evening, I noticed several large craneflies flying about underneath a walnut tree at Lode in Cambridgeshire. Further investigation revealed seven males of the genus *Tipula*, two of which were captured and found to be *T. lunata*. They were dancing up and down in a rather un-gainly, disorganised manner, at times two would tangle together and fall to the long grass below, before parting to continue dancing as before. Although no females were seen, the

behaviour of the males suggest a swarming prior to mating, a habit well known in Winter gnats and a number of the Limoniinae but as far as I know never before recorded in the sub-family Tipulinae.

I would like to thank Mr A. E. Stubbs for checking the identification for me.—I. Perry, 27 Mill Road, Lode, Cambs.

## Current Literature

**Butterflies of the World** by Brigadier H. L. Lewis. xvi+312 (including 208 col. pl.); Harrap Books, £10.00.

In his preface, the author points out that this book is intended to illustrate a great majority of the world's butterfly species without repeating descriptive text already published elsewhere, in a single volume of not unreasonable proportions.

This preface sets out in the simplest language how to use the book. Technical terms are avoided, but the author does not talk down to his readers; the matter is acceptable to the novice as it is to the trained entomologist. Something over 5,000 species are illustrated in over 7,000 figures so as to cover sex dimorphism and undersides where it is desirable that these should be shown. With this number of species under one cover, one might think it an extremely difficult task to run down an insect, but the plates are divided into six geographical areas: Europe and Africa north of the Sahara, North America, South and Central America, Africa south of the Sahara, Asia south of the Himalayas and Australasia (called Indo-Australasia), and Asia north of the Himalayas. These areas are distinctly shown on a world map.

It is made clear that there is little to be gained by figuring species which may only be differentiated by dissection, and others which are too rare to be likely to come before the great majority of interested readers.

In the plates for the above-mentioned regions, the same order of families is maintained throughout; the genera are arranged alphabetically, in the families, and the species alphabetically in the genera.

The plates are numbered consecutively through the book as pages and these numbers run on through the text and index. Each plate has at its foot a small world map with the relevant region blacked in. To save space for the dual purposes of economy in both size and cost, families with large species have their size reduced as shown against the family heading, thus: Papilionidae (1:2) and in order to preserve relativity, that reduction is maintained throughout the family.

The species figured are given their scientific names at the foot of the page, and the reader then turns to the text, where the plate numbers are shown in bold type, and the species are numbered as on the plate. Here the details given are: Scientific Name and Author responsible, Common name, Areas of distribution, Terrain normally inhabited, Larval foodplant,



Resemblances and differences between sexes, Additional information, Varieties and sub-species, and Similar species. Details are always in the above order, but of course, not every species warrants full treatment, and only the heads necessary are used.

The relation between text and plates is carried on in the index where plate and figure numbers are the only information given (species not illustrated are printed in italics and referred to the nearest illustrated species) but this is all that is required.

The plates are all made from colour photographs of duly authenticated specimens in the British Museum (Natural History) collection, and the reproduction by the colour printer has been consistently excellent. The organisation of this work does great credit to the author, for it brings the subject within the reach of readers of all grades. The book should have world-wide interest and it is a must for scientific libraries in all countries; the short accounts in the text are in simple English which should be understandable in most countries, and the Chinese proverb: "A good picture is worth a thousand words" is well borne out.

I understand that some proof corrections were overlooked by the printer, but these will become apparent in due course.

The plates are on good art paper and the text and index on stout matt surface paper, the printing is well done and clear, and the book is strongly bound in boards covered with imitation leather, and has an ornamental paper protective jacket.

The author is to be congratulated on the conception of this work, which is, I think, the first worldwide collection of butterfly illustrations in one volume, where the text is reduced to keep the book within bounds of both price and bulk. The price today is most reasonable for the value offered.—S.N.A.J.

**The Science of Entomology** by William R. Romoser, 4to, xii+449. Collier Macmillan Publishers, London, £4.50.

In his preface, the author points out the huge extent of the world of entomology, and that his object is to give the subject a broad and balanced coverage. He goes on to say that he has treated entomology as a branch of biology which has applied aspects, but which is not, strictly, an applied science, the major portion of the text being concerned with structure and function at various levels of biological organisation, and unity and diversity as a result of organic evolution.

The sequence of topics has been arranged in the way the author thinks most appropriate, and each chapter is designed so that it may be read and understood with minimal reference to other chapters. He adds that its major rôle is in the one-quarter one-semester course in general entomology, but that it should be capable of assisting the professional entomologist in some specialized areas.



The text is divided into three parts: Structure and Function, Unity and Diversity, and Applied Aspects of Entomology. These parts are in turn divided into sections, opening Part 1 with an introduction covering a wide range of subjects. Section 2, headed The Integumentary System, is sub-divided into Histology of Insects, Chemical Composition of the Cuticle, Sclerotination, Coloration, Moulting and Ecdyses and External Integumentary Processes. Section 3, headed Alimentary, Circulatory, Ventilatory and Excretory Systems gives close attention to all these subjects. Section 4 is headed The Nervous, Endocrine and Muscular Systems; 5, Sensory Mechanism, Light and Sound production; 6, Locomotion; 7, Behaviour; 8, Reproduction and Morphogenesis, and 9, Insects and their Environment.

Each of these Parts is profusely illustrated by excellently clear line drawings, photographs, micro-photographs and scanning electron micrographs, and also charts.

Part 3 gives a great deal of information on beneficial and pestilent insects, and the problems arising from this differentiation are closely examined. Attacks on growing plants are first discussed, then stored products, and finally man and animals with the resultant disease and discomfort. After the problems, the solutions are discussed at length; biological control by parasites and predators, pathogenic microbes, competitors, sterilisation and genetic control, and finally, resistant hosts. Finally, the handling of the material used for these purposes is studied in very close detail, and the troubles which might arise from mishandling are pointed out. After these biological methods, chemical insecticides and repellants and also mechanical methods are dealt with. After this discussion of pests, beneficial insects are discussed at some length, the aspects ranging from polination to plant control and food for birds and animals.

Finally, references are cited, and there is a good index.

The book is very well printed, each of the Sections being sub-divided under headings printed in heavy type, and, to me, a very great advantage is that in spite of the quarto format, the pages are printed with a wide margin for notes and illustrations, thus sparing the reader from having to read letterpress extending right across a quarto page. The type is good and clear and the paper is of excellent quality. The whole is strongly bound in cloth boards. On the grounds of both contents and price, this book should be welcomed by students, but it also has a place on the bookshelves of all who are interested in entomology.—S.N.A.J.

From **Dr Dalibor Povolny** of Prague, I have the following separates:

Two papers from *Acta Scientiarum Naturalium Academiae Scientiarum Bohemoslovacae*, Brno, III new series 1969, 12 (nr. 218): *Ergebnisse der Zoologischen Forschungen von Dr Z.*

**Kazab in den Mongolei, (Tribus Gnorimoscheminae, Lep. Gelechiidae).** In this paper the author describes 35 new taxa (32 spp. and 3 sub-spp) of the tribe Gnorimoschemini Povolny 1964 from Mongolia. Of the genus *Scrobipalpa* Janse 1951 (sub-genus *Euscrobipalpa* Povolny 1967) he gives 25 descriptions of sub-species and preliminary descriptions of four sub-species. Three species of *Vladimiria* and three sub-spp. of other genera are described as new. 196 genitalia drawings are given and 32 wing-pattern figures. The paper is in German with an English summary.

This is followed in VII:2 new series, 1973 of the same publication by another paper under the same title. Dr Povolny mentions that the Tribe Gnorimoschemini is represented from Mongolia by 52 named species, of which 36 have been described by the author in this paper. New taxa include *Gobipalpa* gen.n. *Gobipalpa inexpectata* sp.n. *Gnorimoschema herbishi mongoliae* ssp.n., *Scrobipalpa inferna* sp.n., *S. hypothetica* sp.n., *S. similis* sp.n., and *S. splendens* sp.n.; further, the unknown female of *S. concerna* and the unknown male of *Vladimiria maxima* are described. The recently described *Scrobipalpa altaica* is demonstrated to be a sub-species of *S. arogantella*. Fifteen wing pattern drawings are illustrated and 28 genitalia drawings. The paper is again in German with an English summary.

There are two papers from Acta Musei Moraviae 1971-2, LVI: Beitrage zur Kenntnis der Fauna Afghanistans: pp. 767-770: **On Zygaena, Zygaenidae, Lep. Supplement 1** is by W. G. Tremewan and D. Povolny and gives notes on species collected by Dr Povolny in the neighbourhood of Kabul, with an ecological note and a list of Rhopalocera taken, the determinations being by Mr T. G. Howarth. The paper is in English.

LVII: 371-374 include a paper on the same subject entitled **Procris, Zygaenidae, Lepidoptera**, by Burchard Alberti and D. Povolny. This is in the German language; *Procris* (*Zygaenoprocris*) *chalcoclora* Hampson is dealt with and male and female genitalia figures are shown, also the female genitalia of *Procris* (*Roccia*) *ambigua* ?ssp. *asiatica* Staudinger.

**Symmetrischema capsicivorum sp.n. (Lepidoptera, Gelechiidae)**, a new insect pest of red pepper from the Neotropical Region, is from Acta Entomologica Bohemoslavaca 70, No. 3. This species is described by Dr Povolny from material received by him from Peru. The species is said to be related to the pepper flower-bud moth *S. capsium* Bradi, from the West Indies and the United States. Wing patterns and genitalia of both species are illustrated. The paper is in English.

Vol. 70, no. 4 of the same publication is another paper by Dr Povolny entitled: **Scrobipalpa arenbergeri sp.n. und Scrobipalpa bigoti sp.n.—zwei bisher unbekannte europäische Arten der Tribus Gnorimoschemini (Lepidoptera, Gelechiidae).** These two species are described and their affinities discussed. Male and female genitalia are illustrated together with excellent figures of the two species.—S.N.A.J.



## **Exotic Entomological Specimens**

**LEPIDOPTERA — COLEOPTERA — MISCELLANEOUS  
INSECTS OF THE FINEST QUALITY WITH DATA**

20 page Illustrated Catalogue, 20p

**LIVESTOCK** — please send 15p for **current** catalogue of Ova,  
Larvae, Pupae, Cocoons, etc.

**R. N. BAXTER**

**16 BECTIVE ROAD, FOREST GATE, LONDON, E7 0DP.  
ENGLAND**

*FOR A PERSONAL AND INTERESTED SERVICE*

In your replies please mention "The Entomologist's Record"

## **ENTOMOLOGICAL CABINETS**

**Ten Drawer Unit Insect Sections**

---

*Sole manufacturers of the "Hill" Interchangeable  
Unit System formerly produced by J. J. Hill & Son Ltd.*

---

**R. Cattle, Limited**

*Precision Woodworkers*

P.O. BOX NO. 1

**Oxford Road, Gerrards Cross, Bucks.**

**Tel. Gerrards Cross 87131 (4 lines)**



# IMAGO BUTTERFLIES

LEPIDOPTERA SUPPLY & RESEARCH SPECIALISTS

Suppliers of Livestock — Exotic and European

Over forty species listed

Plus prospective list of species we hope to supply in the near future  
General Catalogue available on receipt of 30p (Overseas \$1)

This includes subscription to our annual mailing lists

---

62 HIGH STREET, CROYDON, SURREY, ENGLAND

Please mention the Entomologist's Record

---

## FOR THE ENTOMOLOGIST

Apparatus, Books, Cabinets and Set Specimens

Price lists of the above are issued from time to time so if you would like to receive regular issues please send me a postcard stating your interests

---

**L. CHRISTIE**

137 Gleneldon Road, Streatham, London, S.W.16, 2BQ, England

(Postal business only)

*Official agent for publications of the Amateur Entomologist's Society*

---

**the BUTTERFLY FARM LTD. (Founded 1894)**

**Bilsington, Ashford, Kent England TN25 7JW. Tel. Ham St. 2513**

---

As the oldest farm in the world we are justly proud of our reputation as suppliers of the finest entomological materials.

For livestock and preserved specimens from all over the world; books new or old; breeding, storage and collecting equipment; educational displays, please write for lists and details of our Mailing Index.

We urgently need suppliers of surplus collections, books and cabinets, and also reliable suppliers of livestock.

Visitors especially welcome to look around *the Butterfly Farm*, please phone in advance. See our living and museum displays and our British Wildlife Sanctuary—to which a small charge will go.

---



---

## THE AMATEUR ENTOMOLOGISTS' SOCIETY

---

The Society was founded in 1935 to cater especially for the younger or less experienced Entomologist.

For full details of publications and activities, please write (enclosing 3p stamp to cover postage) to:—**R. D. HILLIARD**, Hon. Advertising Secretary, A.E.S., 18 Golf Close, Stanmore, Middlesex.

---

---

## BRITISH NATURALISTS' ASSOCIATION



has twenty active branches in Britain and a world-wide membership. Its official organ, *Country-Side* (published three times a year), is the oldest-established British magazine devoted to general natural history

Membership subscription 75p per annum

*Full details and application form obtainable from:*

**B.N.A., 'Willowfield', Boyneswood Road, Four Marks, Alton, Hants**

---

---

## THE NATURALIST (founded 1875)

*A Quarterly Illustrated Journal of Natural History*

**Edited by W. A. SLEDGE, Ph.D., B.Sc.**

Annual subscription: £2.00 (post free)

Single numbers 50p

---

*Separates of the collected instalments of the:—*

### **LEPIDOPTERA OF YORKSHIRE (Macrolepidoptera)**

which appeared serially in *The Naturalist* (1967-1970) are also available on application. Price 50p, plus 4p postage

**The Editor of the Naturalist,**

Department of Botany, The University, Leeds, LS2, 9JT

---



---

## EXCHANGES AND WANTS

---

*For Sale.*—Separates of "Emmet's Notes on some of the British Nepticulidae". Price 35p per copy. Printed covers for the collection of 5 parts.—Apply to S. N. A. Jacobs, 54 Hayes Lane, Bromley BR2 9EE, Kent.

*Back numbers*—Our supplies of certain back numbers are now a little reduced and we would be willing to buy in a few copies of Vols.: 75, 77, 79, 82 and 83 at subscription rates. Due to an error there are now no further stocks of the January 1973 issue, we would therefore be indebted to anyone who could part with this issue.—S. N. A. Jacobs, 54 Hayes Lane, Bromley, Kent.

*The Maidstone Museum* have recently set up a Kent Biological Archives and Record Centre, which can now receive records based on the tetrad system (2 Km. sq.), for all insect orders. In particular, a scheme is being set up to record both Macro and Microlepidoptera from 1971 onwards. This is to run in parallel with the very successful plant scheme. The records will be available to any serious student of the Fauna or Flora of Kent. This ambitious scheme obviously must enlist the help of as many resident and visiting Lepidopterists as possible. For further information, please write to: S. E. Whitebread, 2 Twin Cottage, Grove Farm, Higham, Nr. Rochester, Kent, ME3 7NX. Records for other insect orders should be sent to Mr E. Philp at the Maidstone Museum, St Faith's Street, Maidstone, Kent.

*Offers wanted* for the bound volumes 9, 10 and 12 of the Entomologist Record. Replies to Colin Pratt, 5 View Road, Peacehaven, Newhaven, Sussex.

*Wanted.* — Samples of *Apamea monoglypha* (Dark Arches) from MV traps, to aid an investigation into the frequency of melanism in this species. We would like to obtain random samples, caught during the 1974 season, from any locality in the British Isles. If you think you might be able to help and would like further details please write to — J. Muggleton, Dept. of Zoology, University of Manchester, Manchester M13 9PL.

---

### AURELIAN BOOKS

---

Antiquarian, Recent and New Books on Insects, Plants, Birds, Mammals and General Natural History bought and supplied

*Libraries purchased — Catalogues issued — Personal requirements searched for. Please advise us of your wants.*

Write or telephone

**AURELIAN BOOKS, Tumbledown Dick's, Green Tye,  
Much Hadham, Hertfordshire.**

**Telephone: Much Hadham 2676**

POSTAL BUSINESS ONLY

---

---

# THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

(Founded by J. W. TUTT on 15th April 1890)

---

*The following gentlemen act as Honorary Consultants to the magazine:*  
*Orthoptera:* D. K. Mc. E. KEVAN, Ph.D., B.Sc., F.R.E.S., *Coleoptera:* A. A. ALLEN, B.Sc.; *Diptera:* E. C. M. d'ASSIS-FONSECA, F.R.E.S.

---

## TO OUR CONTRIBUTORS

All material for the TEXT of the magazine must be sent to the EDITOR at St Teresa, 1 Hardcourts Close, West Wickham, Kent.

ADVERTISEMENTS, EXCHANGES and WANTS to Dr IAN WATKINSON, "Windrush," 2 Fairleas, Sittingbourne, Kent. Specimen copies supplied by Dr Ian Watkinson on payment of 40p or sterling equivalent which will be taken into account if the person in question becomes a full subscriber.

Changes of address, also enquiries regarding Back Numbers, Volumes and Sets of Volumes, to: S. N. A. JACOBS, 54 Hayes Lane, Bromley, BR2 9EE, Kent.

Subscriptions should be sent to the Treasurer, P. J. RENSHAW, 53 Links Road, West Wickham, Kent BR4 0QN, England.

REPRINTS: 25 copies, taken straight from the magazine are sent gratis to contributors of articles; these may contain extraneous matter. More formal reprints from re-set type may still be had at cost price, and orders for these should be given, at the latest, with the return to the Editor of the corrected proof.

ILLUSTRATIONS are inserted on condition that the AUTHOR DEFRAYS THE COST.

Contributors are requested not to send us Notes or Articles which they are sending to other magazines.

All reasonable care is taken of MSS, photographs, drawings, maps, etc., but the Editor and his staff cannot hold themselves responsible for any loss or damage.

---

## SPECIAL NOTICE

The Editor would be willing to consider the purchase of a limited number of certain back issues.

---



---

# SARUMAN

(incorporating the Butterfly Centre)

Business Reg. No. 1685058

V.A.T. Reg. No. 210 4043 36



Specialists in British and World Lepidoptera and Entomologica  
Equipment — Literature — Livestock — Photographs

58 HIGH STREET, TUNBRIDGE WELLS,  
KENT TN1 1XF ENGLAND

Telephone: Tunbridge Wells 31926

Hours: 9.30 a.m.—5.30 p.m. except Wednesdays and Sundays

---

Directors: Paul Smart, F.R.E.S., Gita Smart; Consultant: John Muirhead;  
Technical Staff: Trevor Scott, Chris Samson, F.R.E.S.

---

Main catalogue 'Butterflies Presented by Saruman'. 1000 plus  
species listed: equipment: books: etc., 40pp inc. colour plates  
85p plus 10p postage

Supplementary lists (10 issued per year): 40p per annum.

---

Wanted to Purchase — Collections, Cabinets, Entomological  
libraries, large or small; Livestock, etc.

---

In your replies please mention  
'The Entomologist Record'

---

# CONTENTS

Collecting Lepidoptera in Britain, 1973. C. G. M. de WORMS . . . .	97
Notes on some of the British Nepticulidae II. A. M. EMMET . . . . .	103
The Subspecies and Forms of the Tailed Birdwing <i>Ornithoptera</i> ( <i>Schönbergia</i> ) <i>paradisea</i> Staudinger. J. P. HAUGUM and A. M. LOW . . . . .	109
New Records of Lepidoptera in Malformed Inflorescence of Mango in the Punjab. G. S. SANDHU and J. SINGH . . . . .	114
New Forest Mercury Vapour Light Records, 1973. L. W. SIGGS . .	115
A Plea for Hardwoods. J. P. SANKEY-BARKER . . . . .	116
On the Reported Occurrence of <i>Maculinea arion</i> L. in South West Ireland. M. JEFFARES . . . . .	118
Obituary :	
P. B. M. Allan . . . . .	119
Notes and Observations :	
<i>Polyommatus icarus</i> Rott. in Shetland. M. W. HARPER . .	120
A Remarkable Emergence. R FAIRCLOUGH . . . . .	120
<i>Etainia sphendamni</i> Hering—A Correction. A. M. EMMET . .	121
<i>Thera juniperata</i> L. comes North. C. I. RUTHERFORD . .	122
<i>Nepticula aeneella</i> Heinemann as distinct from <i>N. oxyacan-</i> <i>thella</i> Stainton. A. M. EMMET . . . . .	122
Infertility in Female <i>Hyales gallii</i> Rott. R. F. BRETHERTON	123
Migrants in 1973. AUSTIN RICHARDSON . . . . .	124
Swarming of <i>Tipula lunata</i> L. at Lode, Cambs. I. PERRY . .	124
Current Literature . . . . .	125

595.7059

Ent.

# THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

*Edited by J. M. CHALMERS-HUNT, F.R.E.S.*

*with the assistance of*

A. A. ALLEN, B.SC., A.R.C.S.

C. A. COLLINGWOOD, B.SC., F.R.E.S.

NEVILLE BIRKETT, M.A., M.B.

H. C. HUGGINS, F.R.E.S.

S. N. A. JACOBS, F.R.E.S. (Registrar) S. WAKELY

Lieut. Col. A. M. EMMET, M.B.E., T.D., F.R.E.S.

H. B. D. KETTLEWELL, M.A. M.B., B.CHIR., F.R.C.S., L.R.C.P., F.R.E.S.



ANNUAL SUBSCRIPTION FOR THIS VOLUME No. 86

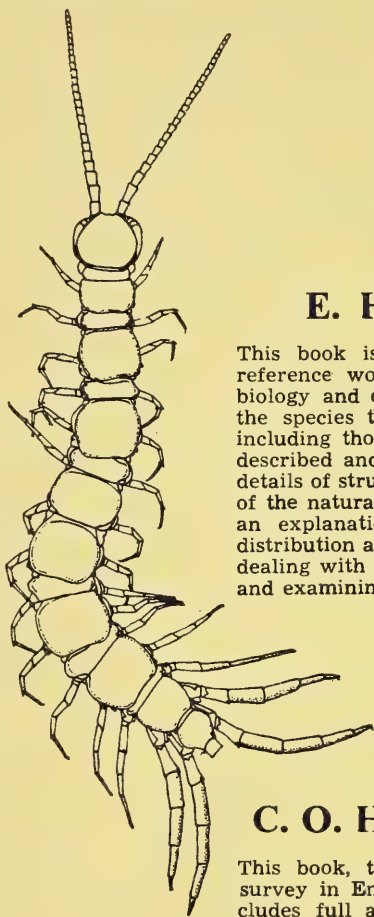
£4.00 Post free, for payment in sterling.

£4.25 if payment is made in Foreign Currency.

Is now due and should be paid to

*Hon. Treasurer:*

P. J. RENSHAW, 53 Links Road, West Wickham, Kent, BR4 0QN



# Centipedes of the British Isles

**E. H. Eason      £3.15 net**

This book is the only fully comprehensive reference work to deal exclusively with the biology and ecology of British centipedes. All the species to be found in the British Isles, including those doubtfully recorded, are fully described and illustrated. The book also gives details of structure and life history, an account of the natural history of the group as a whole, an explanation of the principles governing distribution and classification, and an appendix dealing with methods of collecting, preserving and examining specimens. ISBN 0 7232 0026 2

# Flies of the British Isles

**C. N. Colyer and  
C. O. Hammond      £2.75 net**

This book, the only modern comprehensive survey in English of the British Diptera, includes full accounts of structure and of the more interesting life histories and habits. More than 250 representative species are illustrated in 53 plates, many in colour, and numerous text figures drawn from specimens collected by the authors. There is a section each on the Nematocera, the Brachycera, the Cyclorrhapha Aschiza, the Acalypterates, the Calypterates, and the Pupipara. In addition a long introductory section provides a detailed analysis of the structure of the fly. The book contains a glossary, a bibliography, and is fully indexed.

ISBN 0 7232 0004 1

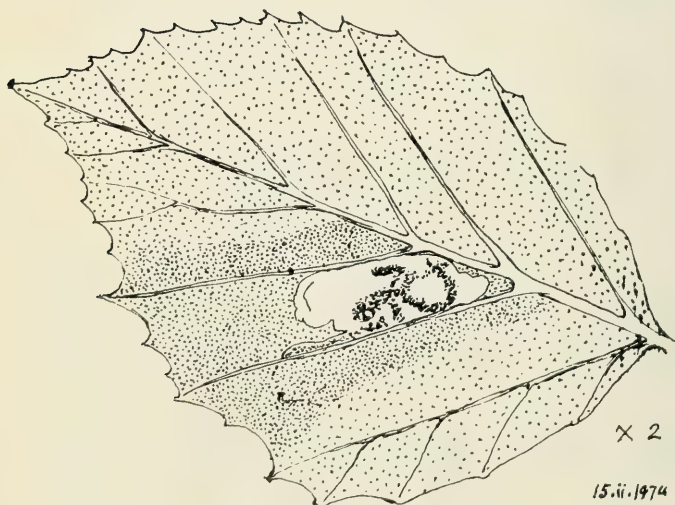
**FREDERICK WARNE & CO LTD**

40 Bedford Square London WC1B 3HE





PLATE IX



*Ectoedemia erythrogenella* de Joannis  
Benfleet, Essex: 24.xi.1973. A.M.Emmet leg.

15.ii.1974  
S.N.A.J.

*Ectoedemia (Dechtiria) erythrogenerella*  
(de Joannis, 1907) (Lep. : Nepticulidae).

A Species New to Britain

By A. M. EMMET

On the 21st of October, 1973, I visited Portland, Dorsetshire in company with Mr S. C. S. Brown. Earlier that day we had been collecting mines of *Nepticula auromarginella* Richardson in its locality near Weymouth. Richardson never succeeded in finding *auromarginella* at Portland, so we set about searching the brambles there to see if the moth had extended its range since his day. Instead of *auromarginella*, we found a Nepticulid mine which I did not recognise. I showed it to Mr Brown and he knew it at once to be *erythrogenerella*, since he has similar mines in his herbarium, sent to him from Austria by Dr J. Klimesch. We extended the range of our search and found the mines to be quite numerous, the majority of them still being tenanted by larvae.

A few days later Mr Brown took further examples at Swanage, about 20 miles east of Portland. Then on the 24th November I found *erythrogenerella* once more, this time at South Benfleet in Essex. Even at that late date some of the mines were tenanted, and the last larva from those I collected did not leave its leaf for pupation until the 8th of December. More recently, on the 8th of February 1974, I was in the Dungeness area and hastily picked a few crimson-spotted bramble leaves in the rain. On my return home, I found that one of them contained a vacated mine of *erythrogenerella*. A common feature of the four localities is that they are close to the sea. It is 150 miles from Portland to Benfleet, and this suggests that *erythrogenerella* may be widespread in warm sheltered spots all along the south coast of England.

The type locality for *erythrogenerella* is Vannes, on the south coast of Brittany and only 200 miles from Portland; so there is nothing surprising in its occurrence in Dorsetshire. But it is hard to believe that it has been present in the country for long. Dorsetshire is the best-worked county in Britain for Nepticulidae with records for over 70 species; this is because such well-known micro-lepidopterists as Banks, Dale, Richardson and Pickard-Cambridge were resident there. They did not miss much, and special attention has always been paid to the mines on *Rubus* since Richardson's discovery of *auromarginella* in 1890. Had *erythrogenerella* been present at that period, it could hardly have escaped notice.

It is idle but tempting to speculate how it reached Britain. Given a good tail-wind, could it have traversed the 75 miles or so of channel? Or did it hitch-hike, perhaps via the Channel Islands and the Weymouth steamer? A parallel case is that of *Nepticula suberivora* Stainton. Of all British Nepticulids, this makes the most conspicuous mines for they are broad

galleries in the evergreen leaves of the holm oak, and as they weather with the passage of time, they turn white and become even more prominent. This species was first found in the Isle of Wight by Waters in 1927, and it is inconceivable that it had been overlooked for more than a brief period prior to that date. It, too, was the first found on a stretch of coastline facing France, yet at the same time, not far from a ferry-port.

An account of *erythrogenerella* follows. The adult is described from six specimens bred at Vannes and presented by de Joannis to the British Museum (Natural History). The description of the early stages is based on my own British material.

Imago. Wingspan 5 mm. Head and collar dark fuscous. Antennal eyecaps shining white. Forewings coarsely scaled, blackish; a shining white spot on the middle of the costa, and a similar spot beyond it on the dorsum, sometimes uniting to form an outwardly oblique fascia; terminal cilia white with a dark line at their base. Hindwings pale grey. It is very similar to *E. albifasciella* Heinemann, but that species has a ferruginous head. It also resembles *E. rubivora* Wocke, but may be told by the outward slant of the white spots or fascia.

Ovum. Laid on or beside a rib on the upperside of a leaf of bramble (*Rubus fruticosus* agg.).

Larva. Dirty greyish white except for the three anal segments which are yellowish; a conspicuous chain of pear-shaped dark spots along the venter. Head and prothoracic plate dark brown. The young larva has the head paler and a row of large, roundish dark spots on the venter similar to those found on *E. quinquella* Bedell and shed in a similar manner. The larva mines venter upwards.

Mine. A first a slender gallery following a nervure, which soon turns back and follows a contiguous course; this process may be repeated a second or third time. Eventually the gallery widens into a blotch, which sometimes fills the space between two nervures. The whole area of the leaf in which the mine is placed turns bright crimson-purple and it was to draw attention to this character that de Joannis named the insect "*erythrogenerella*".

Cocoon. Dark brown with a violet tinge. In captivity it is often spun on the upper surface of a leaf of the foodplant.

The species is probably single-brooded like the rest of our *Ectoedemia*, with the adults flying in June. It occurs on the continent in France, Switzerland and Austria.

I am indebted to Mr S. N. A. Jacobs for the accompanying drawings of the mines of *erythrogenerella*.

---



## The Butterflies of the Shimba Hills

By D. G. SEVASTOPULO, F.R.E.S.

(Concluded from page 23)

*A. aubyni* Eltr. — Common on the outskirts of the Makardara Forest. Recorded for all months except February, November and December.

*A. esebria* Hew., *esebria* — Uncommon in both the Makardara and Marere Forests. Very varied. Recorded for all months of the year. Larvae on *Fleurya* sp. (Urticaceae).

*Pardopsis punctatissima* Bsd. — Rare on the outskirts of the Makardara Forest, common at Marere. Records for all months of the year.

### LIBYTHEIDAE

*Libythea laius* Trim., *laius* — Recorded for all months of the year in and around the Makardara Forest. It is a migrant sometimes present in vast numbers, sometimes completely absent. Not recorded from Marere, which may be further inland than its normal migration route.

### LYCAENIDAE

*Alaena picata* Sharpe, *picata* — Occasional singletons in the Makardara Forest. Recorded in January, August, September, November and December.

*Telipna rogersi* Druce — Fairly common in the Makardara Forest, occurring all through the year. Has the common Liptenine habit of resting on young shoots of various plants opening and shutting its wings, often several together.

*Pentila amenaïda* Hew., *mombasae* Kirby — Common in both the Makardara and Marere Forests all through the year. Usually on the wing but also attracted to young shoots.

*P. peucetia* Hew., *peucetia* — Fairly common in both the Makardara and Marere Forests. Recorded for all months except March, June and October. Attracted to young shoots.

*Teriomima subpunctata* Kirby — Fairly common in the Makardara Forest. Occurs all through the year. Attracted to young shoots.

*T. micra* Gr. Sm. — Not uncommon all through the year in the Makardara Forest. Attracted to young shoots.

*T. aslauga* Trim., *hildegarda* Kirby — Not uncommon in the Makardara and Marere Forests. Recorded all through the year. Fond of resting on young shoots.

*T. minima* Hawker-Smith, *stygia* Talb — One specimen in the Makardara Forest in December.

*Aslauga purpurascens* Holl., *purpurascens* — Rare in the Makardara. Recorded for December to February.

*Deloneura ochrascens* Neave, *littoralis* Talb. — One specimen in a small patch of forest below and to the south of Giriama Point in February.

The larvae of all the preceding are Lichen-feeders.

*Lachnocnema bibulus* F. — Uncommon on the outskirts of the Makardara Forest. Records for January, April, August and October to December. Larvae feed on Coccidae.

*Pilodeudoryx caerulea* Ham. Druce, *obscurata* Trim. — Not uncommon in the Makardara Forest. Recorded from May to September.

*Virachola diocles* Hew., *diocles* — Fairly common on the edges of the Makardara Forest. Recorded for all months except June to August.

*V. dariaves* Hew. — Uncommon around the Makardara Forest. Records for March to May, August to September.

*V. diopolis* Hew. — A single specimen in the Makardara Forest in August.

*V. lorisona* Hew. — Uncommon on the outskirts of the Makardara Forest. Records for March, April and July to September.

*V. dinochares* Gr. Sm. *dinochares* — Fairly common around the Makardara Forest. Recorded in April to August. Larvae in the fruits of *Quisqualis* sp. (Combretaceae).

*V. antalus* Hpffr. — Common on the outskirts of the Makardara Forest. No records for February and April. Larvae in the pods of *Canavallia* sp. (Papilionaceae).

*Hypolycaena philippus* F. — Common in and around the Makardara and Marere Forests all through the year.

*H. buxtoni* Hew., *rogersi* H. Sm. — Fairly common in the Makardara Forest. Records for January, April to September and December.

*Hemiolaus caeculus* Hpffr., *littoralis* Stempf. — Common in the Makardara Forest all through the year.

*Argiolaus silas* West., *lalos* Ham. Druce — Uncommon in both the Makardara and Marere Forests. Recorded for all months except March. Larvae on *Loranthus* spp. (Loranthaceae).

*Epamera silanus* Gr. Sm., *silenus* Hawker Smith — Fairly common in both the Makardara and Marere Forests. Recorded all through the year except December.

*E. aphnaeoides* Trim., *diametra* Karsch — Uncommon in both the Makardara and Marere Forests. Records for April, August and October to December.

*Aphinolaus pallene* Wallgrn. — Occasional singletons on the edges of the Makardara Forest in February to April and November/December.

*Spindasis natalensis* Dbl. & Hew. — Rare in the Marere Forest. Records for April, July and September.

*S. victoriae* Btlr. — Not uncommon on the outskirts of the Makardara and Marere Forests. Recorded all through the year.

*S. apelles* Ob., *apelles* — Uncommon in the Marere Forest. Records for January, July and August.

*S. homeyeri* Dew. — Not uncommon on the outskirts of the

Makardara and Marere Forests. Recorded all through the year except February and October.

*Chloroselas pseudozeritis* Trim., *pseudozeritis* — Rare in the Marere Forest, but may have been overlooked due to its small size. Records for January, June and December.

*Axiocerses harpax* F., *harpax* — Common on the outskirts of the Makardara and Marere Forests all through the year.

*A. amanga* Westw. — Uncommon on the outskirts of the Makardara Forest. Records for January and August to November.

*A. punicea* Gr.Sm. — Fairly common on the outskirts of both the Makardara and Marere Forests, throughout the year.

*Leptomyrina hirundo* Wallgrn. — Fairly common in the Marere Forest. Records for January, April to August, November and December.

*Anthene lasti* Sm. & Kby. — Occurs occasionally in large numbers in the Makardara Forest on damp mud. Records for April and October.

*A. amarah* Guer. — Fairly common in both the Makardara and Marere Forests. Records all through the year except March. Larvae on *Dichrostachys glomerata* (Mimosaceae).

*A. lunulata* Trim., *lunulata* — Common in the Makardara and Marere Forests. Recorded in all months of the year except February, March and November. Larva on *Albizzia* spp. (Mimosaceae).

*A. larydas* Cr., *kersteni* Gerst. — Common in the Makardara Forest. Recorded in all months except February. Larvae on *Dichrostachys glomerata*.

*Cacyreus lingeus* Cr. — Fairly common in the Makardara and Marere Forests. Records for all months except February and March. Larvae on *Coleus* spp. and other Labiates.

*Azanus mirza* Plotz — Fairly common around the Makardara Forest. Recorded all through the year except January and March. Larvae on *Allophylus* sp. (Sapindaceae).

*A. jesous* Guer., *jesous* — Fairly common on the edges of the Makardara Forest. Records for all months except February, March and June. Larvae on *Acacia* sp. (Mimosaceae).

*Syntarucus telicanus* Lang, *telicanus* — Common in all areas all through the year. Larvae on many species of Papilionaceae.

*Petrelaea sichela* Wallgrn., *sichela* — Fairly common on the outskirts of the Makardara Forest. Recorded from May to October and in December. Larvae on *Mundulea* sp. (Papilionaceae).

*Lampides boeticus* L. — Common in all areas through the year. Larvae in the pods of many species of Papilionaceae.

*Levidopochrysops peculiaris* Rog. — Not uncommon in and around the Marere Forest. Recorded all through the year. Larvae on *Lantana camara* (Verbenaceae), eating the flowers, for the first three instars, thereafter leaving the plants and, presumably, entering the nests of certain species of ant.

*Euchrysops barkeri* Trim. — Common on the outskirts of



the Makardara and Marere Forests. Recorded for all months except March and June. Larvae on *Eriosema* sp. (Papilionaceae). The pupa strongly resembles a mouse dropping.

*E. dolorosa* Trim. — A pair in the Marere Forest in December. Larvae said to feed on *Ocinum* sp. (Labiatae).

*E. malathana* Bsd., *malathana* — Not uncommon in the Marere Forest. Records for January, August, September and December. Larvae on various species of Papilionaceae and also recorded as feeding on *Psidium guajava* (Myrtaceae).

*Freyeria trochilus* Freyer — Common in and around the Marere Forest. Recorded for all months except March. Larvae on *Indigofera* sp. (Papilionaceae).

*Cupidopsis cissus* Godt. — Fairly common around both the Makardara and Marere Forests. Recorded in January, May and August to November. Larva on *Eriosema* sp.

*C. iobates* Hpffr., *iobates* — Fairly common on the outskirts of the Makardara Forest. Recorded in January, March and August to December. Larvae on *Eriosema* sp.

*Everes hippocrates* F. — Fairly common on the outskirts of the Makardara Forest. Recorded from March to December.

*Zizeeria knysna* Trim., *knysna* (*lysimon* Hbn.) — Common all through the year in the Makardara and Marere Forests.

*Zizula hylax* F. (*gaika* Trim.) — Common all through the year in the Makardara Forest. Larvae on *Oxalis* spp. (Oxalidaceae).

*Actizera lucida* Trim. — Uncommon on the outskirts of the Makardara Forest. Recorded from July to September.

## HESPERIIDAE

*Coeliades anchises* Gerst., *anchises* — Fairly common in and around the Makardara Forest. Recorded for all months except April. Larva on *Marsdenia* sp. (Asclepiadaceae).

*C. forestan* Cr., *forestan* — Common in and around the Makardara Forest all through the year. Larvae on *Quisqualis* sp. and other Combretaceae, also on *Indigofera* sp. (Papilionaceae).

*C. pisistratus* F. — Uncommon around the Makardara Forest. Records for May, June and August. Larvae on *Marsdenia* sp. (Asclepiadaceae), *Acridocarpus* sp. (Malphigiaceae) and *Indigofera* sp. (Papilionaceae).

*S. seiuncta* Mab. — Uncommon around the Makardara Forest. Records for March to July, September and October. Larvae on *Acridocarpus* sp.

*C. libeon* Druce — Rare in the Makardara Forest. Records for March and May. Larvae on *Drypetes* sp. (Euphorbiaceae).

*Celaenorrhinus galenus* F., *biseriatus* Btlr. — Common in both the Makardara and Marere Forests all through the year. Basks in the sun with outspread wings. Larvae on *Justicia* sp. (Acanthaceae).

*Taaiades flesus* F. — Common in the Makardara Forest. Records for January and from April to December. Rests on



the underside of leaves with outspread wings. Larvae on *Dioscorea* sp. (Dioscoraceae) and *Grewia* spp. (Tiliaceae).

*Eagris sabadius* Gray, *astoria* Holl. — Uncommon around the Makardara Forest. Records for January, April and from June to December. Larvae on *Rhus* (Anacardiaceae) and *Grewia* sp. (Tiliaceae).

*Sarangesa motozi* Wallgrn. — Common in the Makardara Forest all through the year. Larvae on *Justicia flava* (Acanthaceae).

*S. maculata* Mab. — Fairly common in the Makardara Forest. Records for all months except April and May.

*Netrobalane canopus* Trim. — Rare around the Makardara Forest. Records for September and November only.

*Caprona pillaana* Wallgrn. — Not uncommon in the Marere Forest. Recorded for all months except February and April. Larvae on *Grewia* spp. (Tiliaceae).

*Abantis paradisea* Btlr., *paradisea* — Rare on the outskirts of the Makardara Forest. Records for January, February, May, July and from September to December. Larvae on *Annona* sp. (Annonaceae) and *Cola* sp. (Sterculiaceae).

*Spialia zebra* Btlr., *bifida* Higgins — Not uncommon on the edges of the Marere Forest. Recorded in all months except March and October. Larvae on *Melhamia* sp. (Sterculiaceae).

*S. kituina* Karsch — Uncommon on the outskirts of the Makardara and Marere Forests. Records for January, February, July, August and November.

*S. confusa* Higgins, *obscura* Higgins — Uncommon on the outskirts of the Makardara and Marere Forests. Recorded in January, August, September and December. Larvae on *Melhamia* sp. (Sterculiaceae) and *Triumfetta* sp. (Tiliaceae).

*S. dromus* Plotz — Uncommon on the outskirts of the Makardara Forest. Records for July, August and September. Larvae on *Melhamia* sp. and *Triumfetta* sp.

*S. diomus* Hpffr., *diomus* — Fairly common on the outskirts of the Makardara Forest. Records for January, April to June and August to November. Larvae on *Triumfetta* sp.

*Gomalia elma* Trim. — Fairly common on the outskirts of the Makardara Forest. Recorded in March to July, October and November. Larvae on *Abutilon mauritianum* (Malvaceae).

*Astictopterus stellata* Mab., *stellata* — Fairly common around the Makardara and Marere Forests. Recorded all through the year except March. Larvae on Grasses (Gramineae).

*Ampittia capenas* Hew., *capenas* — Uncommon in the Marere Forest. Records for June to August and October.

*Gorgyra subflavidus* Holl. — Very occasional specimens around the Makardara Forest. Records for June and November.

*G. diva* Evans — One or two specimens in the Makardara

Forest in September. Larvae on *Byrsocarpus orientalis* (Connaraceae).

*G. johnstoni* Btlr. — Rare in both the Makardara and Marere Forests. Records for August and September.

*Pardaleodes incerta* Snell., *incerta* — Common in the Makardara Forest all through the year.

*Acada biseriatus* Mab. — Common in both the Makardara and Marere Forests all through the year. Larvae on *Brachystegia* sp. (Caesalpinaceae), but must have alternative food-plants as *Brachystegia* is absent from the Makardara Forest habitat.

*Acleros placidus* Plotz — Very rare in the Makardara Forest. Records for October only, but may have been overlooked as the next species.

*A. ploetzi* Mab. — Not uncommon in the Makardara Forest. Records for January, April and July to December.

*A. mackenii* Trim., *olaus* Plotz — Uncommon in the Makardara Forest but may have been overlooked as the preceding species. Records for January, June and August to December.

*Semalea arela* Mab. — Fairly common in the Makardara Forest from June to September. Larvae common on *Aframomum* sp. (Zinziberaceae).

*Andronymus neander* Plotz, *neander* — Migrates through the Makardara Forest, sometimes present in vast numbers, sometimes absent. Recorded for all months except November. Larvae on *Brachystegia* sp. (Caesalpinaceae).

*A. caesar* F., *philander* Hpffr. — Fairly common in the Makardara Forest all through the year. Larvae on *Deinbollia* and *Blighia unijugata* (Sapindaceae).

*Artitropa comus* Cr., *reducta* Auriv. — A single larva on *Dracaena usambarensis* (Liliaceae) in the Makardara Forest. Imago emerged in December.

*A. erynnis* Trim., *radiata* Riley — Larvae not uncommon in the Makardara Forest on *Dracaena* sp. Imagines emerge in July, August and October to December. Said to be crepuscular, but I have never caught a wild imago.

*Fresna nyassae* Hew., *joppa* Evans — Uncommon on the edges of the Makardara Forest. Recorded in June to September and December.

*Baoris lugens* Hpffr. — Fairly common in the Makardara Forest. Recorded from April to December. Larvae on Grasses.

*B. fatuellus* Hpffr., *fatuellus* — Not uncommon in the Makardara Forest. Records from May to September and December. Larvae on Grasses.

*Pelopidas ferruginea* Auriv. — Fairly common in the Makardara Forest. Records for January, March, April, July and September to November. Larvae on Grasses.

*P. borbonica* Bsd. — Fairly common in the Makardara Forest. Records for January, April to August and December. Larvae on Grasses.

## Collecting Lepidoptera in Britain during 1973

By C. G. M. de WORMS, M.A., Ph.D., F.R.E.S.

(Concluded from page 102)

heads were a virtual blank, except for a few *Procus literosa*. We ran the m.v. trap our final night on the flat roof of part of our hotel with good results, recording just over 200 individuals comprising 56 species. Among the visitors were several moths not previously noted. These included *Tethea duplaris* L., *Eilema lurideola* Zinck., a couple of worn *Pelosia muscerda* Hufn., *Amathes sexstrigata* Haworth, *Procus furuncula* Schiff., *Celaena leucostigma* Hübn., *Catocala nupta* L., a very early date. The new geometers were *Orthonama vittata* Borkh., *Eupithecia albipunctata* Haworth, *E. centaureata* Schiff. and *Deuteronomos alniaria* L.

On August 13, yet another scorching day, we travelled via Swaffham and Dereham to Stoke Ferry where in great heat we diligently searched the Meadow Rue (*Thalictrum*) for larvae of *Perizoma sagittata* Fab. but without success. We next stopped for a short time in an open area of the Breck just north of Brandon where a number of butterflies were about, mainly many *Polyommatus icarus* Rott. with a few *Heodes phlaeas* L. and *Eumenis semele* L. We reached Surrey that evening after a most enjoyable few days under ideal conditions.

The remarkable heatwave continued well into the middle of August reaching a maximum on the 16th with quite tropical shade temperature of just 90°F. However, this oppressive atmosphere had given way to more congenial conditions when I motored on the 17th to the Cotswolds to stay with Mr and Mrs Ronald Demuth in their most attractive home at Oakridge near Stroud. The next day, after visiting Mr Austin Richardson at Minchinhampton we crossed the Severn and went on a tour through Tintern and back through the Forest of Dean, but nothing of note was seen nor were any *Cryphia muralis* Forst. to be found on some lichen-covered walls in Gloucester. That evening we placed our m.v. light among a bed of butterbur not far from Nailsworth. But searching at dusk among the leaves failed to produce any *Gortyna petasitis* Doubleday nor were any attracted to light though it was a known locality for this insect. However, among 22 other species at the lights were *Notodonta dromedarius*, *Polia chi* L., *Amathes xanthographa* L., *Cosymbia linearia* Hübn., *Ecliptoptera silaceata* Schiff., *Ortholitha chenopodiata* L., *Abraxas grossulariata* L., and several *Deuteronomos fuscantaria* Stephens. There was yet another fine day on August 19 when my hosts motored me to the Malvern Hills and back via Cheltenham, but only a few Pierids were seen en route. The Frampton marshes bordering the Severn were our venue after dark, but it was a disappointing night with only 16 species among which were a few *Hadena suasa* Schiff., also



*Leucania impura* Hübn., *Hydraecia nictitans* Borkh., *Apatele rumicis* L., *Calothysanis amata* L. and *A. grossulariata* L.

During my three nights stay at Watercombe House my host had run his static trap which attracted at least 1300 moths. Those species of note were *Harpyia furcula* Clerck, *Tholera cespitis* Schiff. female, *Selenia tetralunaria* Hufn., several *Ennomos quercinaria* Hufn., *Deuteronomos erosaria* Schiff., *Anaitis efformata* Guenée, also a few females of *Hepialus sylvina* L. On August 20 I motored to the downs near Westbury, where a good many butterflies were to be seen, including *Lysandra coridon* Poda, already past their best, with a few *Aricia agestis* Schiff., *Polyommatus icarus* Rott., *Pararge megera* L., and some *Eremobia ochroleuca* Schiff on flower heads. I returned to Surrey that evening.

The remarkably warm weather continued almost without a break for the rest of the month, bringing out a spate of the summer butterflies, in particular Red Admirals, Small Tortoiseshells and the common Pierids which flocked to local buddleia bushes in my own garden and in most parts of southern England. I paid another visit to Kent on August 24 with headquarters at Ashford, but only a few *Amphipyra pyramidea* L. came to sugar that night in the Hamstreet woods and the posts at Dungeness proved a blank the next morning. The Orlestone woods were once more the scene of the next night's activities. Quite a number of insects came to our Heath light in spite of fairly cool conditions. Among 20 species were *Drepana binaria* Hufn., *Thyatira batis* L., *Tholera cespitis*, *T. popularis* Fab.

The temperature was well in the 70's on August 26, when I once more visited Mr Michael Tweedie, near Rye, and his garden was again full of Vanessids. That evening I placed my Heath apparatus overlooking some marsh mallow plants in an open field south of Appledore and was surprised when three males of *Gortyna hucherardi* Mab. arrived soon after dark, as I have never known this insect appear before September. The few other species comprised *Apamea testacea* Schiff., and *T. popularis*. The Bank Holiday, on the 27th, was dull and much cooler, but once again there was quite an assortment of insects that evening at the Heath light in the Hamstreet woods, where I was joined by Mr Youden from Dover. *Drepana binaria* put in a further appearance and there were also *Notodonta dromedarius*, *T. popularis*, *Leucania pallens* L., *Cosmia trapezina* L., *Deilinia pusaria* L., and *Mamestra brassicae* L.

Back in Surrey, the Vanessids seemed to have been getting every day more plentiful, with the warmth still prevailing, and September opened with no let-up, especially on the 5th when the shade temperature reached the phenomenal level of 85°F for the time of year. *Eumenis semele* was still flying on Chobham Common the next day in great heat too. The grand spell was still persisting when I accompanied Mr J. Messenger to Portland on September 7, arriving about 4 p.m. in time to



make a survey of some of the open areas there. Quite a number of Chalk-hill Blues were still about, mainly females, together with a few Common Blues and Small Coppers, while the little geometer *Aspitates ochrearia* Rossi was to be flushed freely. But little came to our m.v. lights perched on a cliff, overlooking the Chesil beach. *T. cespitis* and *Epirrhoë galiata* Schiff. were the only insects of interest. The next day, with the thermometer in the low 80's, we ventured to Bexington at the western end of Chesil Bank. Here we were delighted to see *Colias croceus* Fourc. flying over fleabane and later that day in a garden on the outskirts of Bridport, I was amazed to see a huge concourse of Tortoiseshells jostling each other on about 1½ sq. ft. surface of the flower heads of *Sedum spectabile*. On approaching I counted no less than 75, with nine Red Admirals, the biggest assemblage of these butterflies I have ever seen. Large numbers of Silver-Y's were about everywhere as well. The 9th was an equally warm day with Red Admirals galore in the grounds of Pennsylvania Castle Hotel. The undercliff on the eastern side of Portland was the scene of our nocturnal operations. The chief feature was a huge flight of *Plusia gamma* L. of which at least a hundred arrived on our sheet soon after dark with a number of *Caradrina ambigua* Schiff., and a few *Leucania l-album* L., with *Scopula promutata* Guenée, *E. galiata* and *Lyncometra ocellata* among ten other species I noted. Back at the hotel our static trap was alive with insects. As it turned out, there were some 350 visitors, among which we counted 270 *P. gamma*. We heard later that another collector working on Portland that night had over a thousand of this migrant at his lights, thus giving evidence of a huge invasion. The four nights we ran our trap produced just short of 600 moths. The coastal specialities were already well out at this date, such as *Eumichtis lichenea* Hübn., with *Leucochlaena hispida* Geyer in plenty and an occasional *Aporophyla australis* Boisd. Other migrants were *Agrotis ypsilon* Hufn. and *Peridroma porphyrea* Schiff. Among the more interesting geometers we recorded were several *E. quercinaria*, with a female which eventually laid well. Other species included *T. cespitis*, *S. promutata*, *Gnophos obscurata* Schiff., and several *Hepialus sylvina*.

Our final day on September 10, we spent touring the region between Portland and Swanage, in the vicinity also of Corfe Castle and Lulworth Cove, but overcast conditions prevented any active collecting. The Vanessids were in force in the New Forest, mainly on buddleia on the 11th, when we were en route back to Surrey, where *A. urticae* was now abundant.

The wonderful spell continued till the middle of the month with 79°F on the 15th, but not much was moving in the Durfold Woods the next day and it was distinctly cooler when I stayed with my relations at Blandford on September 21, where as usual the Tortoiseshells were about in all the gardens. We went over to Portland again on the 23rd where the sun was still shining and the Red Admirals still in plenty. A static m.v.

trap in my relatives' garden that night provided 160 insects. By far the most numerous was *Omphaloscelis lunosa* Haworth in its many forms. Other species on this mild night included *Aporophyla nigra* Haworth, *Tiliacea citrargo* L., *Caradrina clavipalpis* Scop., *Gortyna micacea* Esp., *Atethmia xerampelina* Esp., many *Leucania pallens* L., also *Deuteronomos erosaria* Schiff. and *D. fuscantaria* Stephens. Several Commas were disporting themselves on the michaelmas daisies on the 24th in the garden of Mr C. Dixon, whom I visited on the way home and Red Admirals, Small Tortoiseshells and Small Whites were still much in evidence in that vicinity.

On September 25, I travelled by train to Thorpe-le-Soken, where I stayed once more with Mr and Mrs B. Fisher at their home in that neighbourhood. Fortunately conditions were far more favourable than on my visit just a year previously. We started our operations well after dark, about 8.30 p.m., placing a big m.v. light on a bank overlooking a large growth of *Peucedanum officinale* which produced nothing at dusk. However, we had a great thrill at 9 o'clock when a very large and perfect male *Gortyna borelii* Mab. suddenly alighted on our sheet with another equally good example just an hour later, but no more after that. Other moths at the lights included several very big female *Rhizedra lutosa* Hübn., with *Triphaena comes* Hübn., *Amathes c-nigrum* L., *A. lunosa*, *G. micacea*, *L. pallens* and *Dysstroma truncata* Hufn. We returned to my host's home just before midnight when he started up his static trap. The next morning we were surprised to find another grand specimen of this spectacular insect, *G. borelii* on the side of his trap, though we were well over a mile from the site of its foodplant. There was a great concourse of the commoner species, most notably some 200 of *Agrochola lychnidis* Schiff. in most of its forms, with a good sprinkling of *Anchoscelis litura* L., and most of the common insects seen earlier that night on the marshes. I returned to London later that day, well pleased with my brief visit to that part of Essex.

The Small Tortoiseshells and Red Admirals were still in plenty on the michaelmas daisies during the last days of September and well into October. On the 2nd there were quite a number flying in woods near Chiddingfold with *Polygonia calbum* and *Pieris napi* L. Temperatures were well in the 60's during the first half of October. But there was a noticeable decline in insects during the latter part which was much cooler in spite of considerable sunshine. I paid my final visit to Kent on October 20, but nothing was on the wing in the Hamstreet area the following day. Red Admirals were still flying the first days of November which was on the whole very sunny and mild for the first three weeks, but there was a general falling off of insects at light, though some collectors had a spate of *Ptilophora plumigera* Schiff. in the early part of the month, while there was a big emergence of *Poeciloscampa populi* L. during the first half of December.

In conclusion the year 1973 was indeed a most memorable

one, not only for one of the best summers this century but also, in consequence, for the profusion of many butterflies, in particular the Small Tortoiseshells, Red Admirals, Peacocks and the Chalk-hill Blue in many districts. By far the most spectacular event among the moths, was the great immigration of the Bedstraw Hawk (*Hyles galii* Rott.) which compared well with its major years of 1870, 1888 and 1955. Other migrant species too were well up to average and there was a good reappearance of *Colias croceus*, chiefly in the south-western region.

## A Review of Indian Phytoseiid Mites with a Note on their Zoogeography

By S. K. GUPTA

(Zoological Survey of India, Calcutta-12, India)

Considerable attention has been focussed on the mites of the family Phytoseiidae because of their immense importance as predators and, thus, for their possible utilisation for the natural control of pest species of mites particularly of the families Tetranychidae and Eriophyidae.

The information available on phytoseiid mites in India is scanty in comparison to work done abroad. Narayanan and Khot (1959) were first in India to bring into light the importance of phytoseiid mites as biocontrolling agent when they recorded *Amblyseius cucumeris* (Oudemans) feeding on *Oligonychus mangiferus* on mango. Next year Narayanan and Kaur (1960) described for the first time two new species of the genus *Amblyseius* Berlese. In the same year Narayanan and Kaur (1960a) and Narayanan *et al.* (1960) discussed in detail the important taxonomic characters of the family Phytoseiidae. They emphasized that the number, arrangement, nature, position and relative lengths of setae together with some other anatomical characters are important in the taxonomy of this group. Narayanan *et al.* (1960) also reported 8 species including 3 new ones. Chant (1960) described 4 new species of *Typhlodromus* Scheuten and *Amblyseius* Berlese. Narayanan & Ghai (1963), while investigating into the causes of mango malformation, found some mites associated with this disease. Three of them belonged to the family Phytoseiidae including a new one under *Typhlodromus*. Krantz and Khot (1962) described a species of *Hemipteroseius* Evans. Ghai (1964), while reviewing the work done on mites of economic importance in India, listed 17 species of Phytoseiidae. Ghai and Menon (1967) reported 16 species of *Amblyseius* Berlese including 7 new ones and provided a key for the first time for the Indian *Amblyseius* species.

From the material received from India and Pakistan, Muma (1967) reported 15 species including 8 new ones under the genera *Amblyseius* Berlese, *Typhlodromips* De Leon, *Amblydromella* Muma, *Cydnodromus* Muma and *Cydnoseius*



Table 1  
Zoogeographical analysis of phytoseiid mites so far known from India\*

Genera	Total number of species	Endemic	Oriental	Ethiopian	Australian	Palaeartic	Nearctic and Neo- tropical	Cosmo- politan
Amblyseius	36	21	22	5	—	1	3	5
Indodromus	1	1	1	—	—	—	—	—
Indoseius	1	1	1	—	—	—	—	—
Phytoseius	8	4	5	—	—	1	1	1
Typhlodromus	11	7	7	—	1	1	—	2
Hemipteroseius	1	1	1	—	—	—	—	—
Total	58	35	37	5	1	3	4	8
		60.34%	67.79%	8.62%	1.72%	5.12%	6.89%	13.79%



Muma. Of them, only 3 species of *Amblyseius* belonged to Indian subcontinent. Ghai and Menon (1969) erected two new genera, viz. *Indodromus* and *Indoseius* with one new species as type for each genus. Gupta (1969) described a new species of *Typhlodromus* from India. In the same year he (Gupta, 1969a) added 3 more new species of *Phytoseius* Ribaga. Gupta (1970) listed 25 species of Phytoseiidae of which 10 were reported for the first time from this subcontinent. In the same year he (Gupta, 1970a, 1970b) added 7 more new species belonging to genera *Amblyseius* Berlese and *Typhlodromus* Scheuten.

So, by summarising the overall information it appears that only 58 species are known from India which are distributed over 6 genera, viz. *Amblyseius* Berlese, *Indodromus* Ghai & Menon, *Indoseius* Ghai & Menon, *Phytoseius* Ribaga, *Typhlodromus* Scheuten and *Hemipteroseius* Evans.

As regards the Zoogeographical composition, Indian species (Table 1) show high degree (60.34%) of endemism. Among the known species 63.79% constitute the oriental fauna. Of the remaining, 8.62% belong to Ethiopian region, 1.72% to Australian region 5.12% to Palaearctic region, 6.89% to Nearctic and Neotropical region and 13.79% are cosmopolitan in distribution. The cosmopolitan species are: *Amblyseius fallacis* (Garman), *A. finlandicus* (Oudemans), *A. largoensis* (Muma), *A. ovalis* (Evans), *A. cucumeris* (Oudemans) *Typhlodromus bakeri* (Garman), *T. rhenanus* (Oudemans) and *Phytoseius macropilis* (Banks).

Among the genera *Indodromus* Ghai and Menon and *Indoseius* Ghai and Menon are endemic.

The author is grateful to Dr D. N. Roychoudhuri, Reader in Zoology, Calcutta University for many valuable suggestions and to Dr A P. Kapur, Director, Zoological Survey of India, Calcutta for the facilities and encouragements.

### References

- Chant, D. A. (1960). Description of five new species of mites from India (Acarina: Phytoseiidae & Aceosejidae), *Can. Ent.*, **92**: 58-65.
- Ghai, S. (1964). Mites, In Entomology in India, *Indian J. Ent.* Silver Jubilee No. 385-396.
- Ghai S., and Menon, M. G. R. (1967). Taxonomic studies on Indian mites of the family Phytoseiidae (Acarina) I. New species and new records of the genus *Amblyseius* Berlese from India (Acarina: Phytoseiidae) with a Key to the Indian species, *Oriental Insects*, **1**: 65-75.
- Ghai, S., and Menon, M. G. R. (1969). Taxonomic studies on Indian mites of the family Phytoseiidae (Acarina) II. Two new genera and species of Phytoseiidae, *Oriental Insects*, **3**: 347-352.
- Gupta, S. K. (1969). Description of a new species of *Typhlodromus* Scheuten (Acarina: Phytoseiidae) from India, *Sci. & Cult.*, **35**: 277-278.

- Gupta, S. K. (1969a). Three new species of the genus *Phytoseius* (Acarina: Phytoseiidae) from India, *Israel J. agric. Res.*, **19**: 115-120.
- Gupta, S. K. (1970). Preliminary note on plant mites (Acarina) from West Bengal, *Sci. & Cult.*, **36**: 98-99.
- Gupta, S. K. (1970a). Some predatory mites of the family Phytoseiidae from West Bengal, India (Acarina: Mesostigmata), *Oriental Insects*, **4**: 185-191.
- Gupta, S. K. (1970b). Three new species of the genus *Amblyseius* Berlese (Acarina: Phytoseiidae) from West Bengal, India, *Bull. Ent.*, **10**: 125-129.
- Muma, M. H. (1967). New Phytoseiidae (Acarina: Mesostigmata) from Southern Asia, *Fla. Ent.*, **50**: 267-280.
- Narayanan, E. S. and Khot, N. S. (1959). Studies on some Entomophagous mites and their possible use in biological control, *Proc. Ind. Sci. Congr.*, **46**: 411.
- Narayanan, E. S. and Kaur, R. B. (1960). Two new species of the genus *Typhlodromus* Scheuten from India (Acarina: Phytoseiidae), *Proc. Ind. Acad. Sci.*, **51B**: 1-8.
- Narayanan, E. S. and Kaur, R. B. (1960). Recent trends in the taxonomy of the family Phytoseiidae Berl. 1913. Predatory mites with new records and descriptions of species, *Proc. Ind. Sci. Congr.*, **47**: 467.
- Narayanan, E. S., Kaur, R. B. and Ghai, S. (1960). Importance of some taxonomic characters in the family Phytoseiidae Berl. 1916- (Predatory mites) with new records and description of species, *Proc. natn. Inst. Sci.*, **26B**: 384-394.
- Narayanan, E. S. and Ghai, S. (1963). Some new records and new species of mites associated with malformation of Mango trees in India, *Proc. natn. Inst. Sci.*, **29B**: 535-546.

## Local Rarities and New Derbyshire Records for 1973

By F. HARRISON

24 Church Street, Holloway, near Matlock)

Lepidoptera recording in Derbyshire and adjacent areas of the surrounding counties has been carried out during the past year with a greater intensity than usual, by members of the Derbyshire Entomological Society, in preparation for a new publication on the counties lepidoptera. The frequent field excursions, plus an unusually favourable summer, produced some interesting specimens, some of the most important of which are listed below.

*Gonepteryx rhamni* L. is a scarce species in the county though a few are recorded annually, particularly in the south. During 1973 the following specimens were recorded: — one, 8th June, Lathkil Dale (R. A. Frost); one, 16th June, Clough Wood; one, 31st July, Tansley (B. L. Statham); one, 16th May and five during the period 15th August to 19th September in Elvaston Castle Country Park near Derby (M. Tong).

*Polygonia c-album* L. has not been recorded for a number of years but a single specimen turned up at Churchtown, Darley Dale (V. Calhoun).

*Donacaula mucronellus* D. & S. M.V. trap, three, 26th June—29th June, Elvaston Castle Country Park. First county records for this species (F. Harrison).

*Myelois cribrella* Hübn. M.V. trap, nine, 8th June—18th July, Elvaston Castle Country Park. First county records for this species (F. Harrison).

*Eupithecia dodoneata* Guen. M.V. trap, four, 20th May—13th June, Elvaston Castle Country Park. First county records for this species (F. Harrison).

*Rivula sericealis* Scop. M. V. trap, one, 25th July, Elvaston Castle Country Park. First county record for this species (F. Harrison).

*Drepana binaria* Hufn. M.V. trap, two, 29th May, Elvaston Castle Country Park. Only three previous specimens recorded in the county (F. Harrison).

*Apamea charactera* Hübn. M. V. four, 22nd June—6th July, Elvaston Castle Country Park. Very local and has not been recorded in recent years.

*Noctua interjecta* Hübn. *caliginosa* Scha. M.V., four 2nd August—16th August, Elvaston Castle Country Park. This has always been a county rarity. Six specimens were seen flying by day on the 4th August at Blaxton Common on the Notts/Yorkshire boundary (F. Harrison).

*Rhizedra lutosus* Hübn. E. L., two, 17th and 26th September, Elvaston Castle Country Park (M. Tong). Single specimens are occasionally recorded.

*Xylena vetusta* Hübn. E. L., one, 1st November, Elvaston Castle Country Park. (M. Tong). Only previous county records are single specimens in 1905 and 1951.

*Conistra ligustri* Esp. M.V., twenty, 3rd to 8th November, Elvaston Castle Country Park. Very local and rarely recorded in numbers.

*Oligia versicolor* Borkh. M.V., three 18th July, Elvaston Only two previous county records, both in 1972.

*Acronycta trideus* D. & S. M.V., one, 26th June, Elvaston Castle Country Park. (F. Harrison). A larva was found at Mapperley on 26th September (D. Clay, J. Culpin).

*Lycia hirtaria* Clerck. M.V., seven, 6th May—22nd May, Elvaston Castle Country Park (F. Harrison); M.V., one, 13th April, Mapperley (D. Clay). This species is being recorded with increasing frequency since the first county specimen was recorded at Bolsover in 1969.

*Eupithecia indigata* Hübn. M.V., twenty-seven, 23rd May—10th June, Elvaston Castle Country Park. Very local and not recorded for some years.

*Plagodis dolabraria* L. M.V., ten, 29th May—3rd July, Elvaston Castle Country Park. Occasionally recorded as single specimens but rarely in numbers.

*Selenia lunularia* Hübn. M.V., one, 7th June, Elvaston Castle Country Park. Very rare in the county.



*Comibaena pustulata* Hufn. M.V., three, 28th June—2nd July, including one of the pink form, Elvaston Castle Country Park; three, including two of the pink form at M.V. 25th June—1st July at Mapperley (D. Clay). This species is very scarce and local in the county.

*Eupithecia tantillaria* Boisd. M.V., three, 29th May—13th June, Elvaston Castle Country Park.

*Rheumaptera undulata* L. Two, 4th and 5th July, Elvaston Castle Country Park. The only previous county record was of a single specimen at Chellaston in 1895.

*Lobophora halterata* Hufn. One, 27th May, Elvaston Castle Country Park. Has not been recorded in the county for many years.

*Scopula imitaria* Hübn. Seven, 4th July—3rd August, Elvaston Castle Country Park. No records for many years. A single specimen was also taken at M.V. on 10th August at Elkesley in North Nottinghamshire.

*Ennomos erosaria* D. & S. M.V., Sixteen, 2nd August—8th September, Elvaston Castle Country Park. A single specimen at M.V. on 15th September at Hilton Gravel Pits Nature Reserve. Local and scarce.

*Larentia clavaria* Haw. M.V., one, 26th September, Elvaston Castle Country Park. Rarely recorded and then only as single specimens.

*Syanthodon vespiformis* L. Fourteen, larvae in oak stumps at Langwith Wood on the 24th June (F. Harrison, J. Culpin); an adult on the 9th July at Shipley Wood (T. Duro).

*Schranksia costaestrigalis* Steph. A female netted at dusk on 15th September in the Derbyshire Naturalist Trust Reserve at Hilton by B. Statham. This is the first county record since a mention of the species in the Victoria County History.

*Harpyia bicuspis* Borkh. M. V. one ♂, 26th May, Clay Cross (J. Culpin). First record from this part of the county for this scarce species.

*Apeira syringaria* L. M.V., two, 29th and 6th July, Ilkeston Grammar School (J. Culpin); M.V., two, 28th and 29th June, Mapperley (D. Clay).

*Hyles galli* Rott. A fully-grown larva was found in a Derby street on the 7th September by a Mr Foster and handed in to Derby Museum.

*Rhodometra sacraria* L. M.V., one, ♂, 13th September, Darley Dale (B. Statham). M.V., one, ♂ 15th September Hilton Gravel Pits Reserve (B. Elliott).

*Eremobia ochroleuca* D. & S. M. V., one, 10th August, Elkesley, Notts.

*Xanthorhoe quadrifasiata* Clerck. 2 ♀♀ were taken from a wall beneath a lamp, on the evening of 10th August in the village of Elkesley, Nottinghamshire, by Mr J. Culpin. One of these specimens laid fertile ova and both were seen and examined by a number of experienced entomologists. The genitalia of one specimen was also examined by Mr T. H. Ford of Sheffield. This is the first Nottinghamshire record for over a century and the site is probably the most northerly British locality for his species.



## Notes on some of the British Nepticulide II

By A. M. EMMET

(Concluded from page 108)

it progresses and is not pushed into a corner. The mine generally fills the angle between the midrib and a lateral vein.

(c) Distribution. In some localities such as north-west Kent I have found *albifasciella* but not *quercifoliae*; in others such as north-west Essex, I have found *quercifoliae* but not *albifasciella*; in others again, such as Wicken Fen, I have found both species in their respective seasons.

In reply Dr Klimesch wrote:—"I agree with your opinions on the oak-feeding *Dechtiria*, admitting that your very exact observations on the behaviour of the larvae and the mines of *Dechtiria albifasciella* Hein. and *D. quercifoliae* Toll agree perfectly with those made by the late Dr Toll. Personally I have only a few observations belonging to the two mentioned species. These correspond to your remarks. Therefore I am inclined to admit *quercifoliae* Toll as a good species".

I have waited a year before writing an account of *quercifoliae* in order to breed the imagines and obtain larvae of *albifasciella* for comparison. I was successful in the second aim when in company with three other entomologists I found *albifasciella* plentifully near Thorpeness, Suffolk last September. I enlisted the help of Dr J. D. Bradley over the description which was made from a number of larvae, some of which were extracted from their mines and viewed under a microscope. We wrote:—"Translucent glossy white, dorsal vessel green. Head and prothoracic plate very pale brown, mandibles darker". So now we see that after all there are differences in the larvae of the three species, which may be summarised as follows:—

*albifasciella* — Head and prothoracic plate very pale brown.

*quercifoliae* — Head and prothoracic plate reddish brown.

*subbimaculella* — Head and prothoracic plate blackish brown.

I think there are differences, too, in the markings of the young larvae when they are still in their fine galleries, for *albifasciella* has large ventral spots which are shed before it starts blotch feeding whereas I could not observe such spots in *quercifoliae*. Hering (1957), however, states that the young larva of *quercifoliae* does have these spots. It will not be possible to clear up this matter till next season.

With regard to the imagines, I bred long series of *subbimaculella* and *quercifoliae* last summer, the two having been carefully segregated from the larval stage onwards. While it is not possible to be sure about individual moths, there are observable differences when series are compared. In most examples of *quercifoliae* the white patch at the base of the forewings is larger and the head is darker fuscous, only the face being ferruginous. In *subbimaculella*, the basal white

patch is usually smaller and the crown of the head is mixed ferruginous and fuscous. As I have said, there is variation over these characters and some overlapping, so that I would hesitate to be dogmatic in separating isolated specimens of the two species. I have not yet been able to study sufficient specimens of *albifasciella* to decide whether it has any superficial differences from its close relatives.

Mr E. S. Bradford has started to make a study of the genitalia of this group. Preliminary results seem to show that there are slight differences, but more specimens will need to be dissected to find out if these differences are constant.

So far *quercifoliae* has been recorded from north-west Essex and Cambridgeshire, where it is common. Mr D. W. H. fiennell has found it at Abbots Down in Hampshire. There are other areas where it has been looked for without success. Both in 1971 and 1972 I failed to find it in Kent. I was likewise unsuccessful in Epping Forest in 1971, and I understand from Mr R. W. J. Uffen that he has had the same experience. Clearly it is much more local than *subbimaculella*, but it is sure to turn up in a number of hitherto unrecorded localities, which should be published.

New records made for *albifasciella* this year are for Suffolk (Thorpeness), Somerset (Leigh Woods) and Monmouthshire (Tintern).

In my previous notes I recorded that larvae of the *subbimaculella* group occasionally pupate inside their mines and mentioned that Hering (1957) thought this habit might indicate that there was another species. In 1971 a larva of the closely related *E. quinquella* Bedell spun up in its mine. This indicates that individuals of the known species in this group do sometimes behave in this aberrant fashion, and there is no need to postulate any separate species for this reason.

In Meyrick (1928) and Ford (1949) we find a species called *Trifurcula atrifrontella* Stainton which is described as having a larva which feeds in April and May in the bark of *Genista*. According to Tutt (1899), this life-history emanated from Sorhagen (1886) who himself was quoting from Glitz. So it comes as a double surprise to find *atrifrontella* assigned to a different genus and a different foodplant.

The errors probably arose through confusion with the rather similar-looking *Trifurcula pallidella* Zeller. Hering (1957) corrects both the mistakes. He transfers the moth to *Ectoedemia* and states that it mines the bark of oak. The four mines from which the original description was made are in his herbarium, which is housed at the British Museum (Natural History). They are of remarkable interest. They are formed in young tender bark which is free of lichen; Hering says that green bark is preferred, but these examples are in reddish bark, perhaps because of a colour change caused by the passage of time. The mine is a long, rather narrow gallery, raising the surface in a slight ridge. The track is strongly contorted, in each case doubling back and crossing

over earlier workings. In two examples the track is yellowish and conspicuous against the reddish background. The third is concolorous with the bark and hard to see. The fourth is partly concolorous and partly yellow. One mine is in a twig of about a quarter of an inch diameter, while the others are in bark peeled from larger branches with a width of perhaps two inches.

This species has been taken round oaks in the past. Stainton beat a specimen from oak in 1851 and Barrett used to find it on oak trunks at Hazelemere (Tutt 1899). Waters beat two specimens from oak at Tubney Wood, Berkshire in September 1920. It is a scarce species, rarely seen in collections. The most recent record known to me is from Dorset where Adkin took a specimen now in the British Museum (Natural History), on 25th May 1933, an unusually early date of emergence.

Now that its life-history is known, perhaps it will be found more freely. Hering says that the larva feeds "until June", but does not say when it starts to mine. The eggs are presumably laid in August or September and it is likely that the larva hatch in the autumn and feed slowly through the winter. The winter, when there is no obscuring foliage, may be the best time to search. Even vacated mines would give us current localities. Tenanted mines should be left till the Spring, unless well advanced. When a branch has been severed, I would suggest putting the end in damp sand as is recommended for the clearwings. If the sand is then covered with moss, there will be suitable material for pupation, for the larva leaves the mine for this purpose.

The imago has been recorded from late May till early September and this has led writers to regard it as double-brooded. If it is, it is our only bivoltine *Ectoedemia*. It is more likely that it is a single-brooded insect with a long period of emergence.

### ULMUS spp. (Elm)

In my previous notes (*Ent. Record* 83: 300-302) I questioned whether certain newly recorded elm-feeding nepts were in fact separate species. I then thought that *ulmifoliae* Hering and *ulmi* Skala were mine-forms of *ulmivora* Fologne, but as I had not yet reared any imagines, my views were still conjecture. However, during 1971 I bred a series from each of the three types of mine which I had collected the previous autumn and kept separately, and confirmed my suspicions that they were all *ulmivora*. With another 'species', *ulmicola* Hering, I was too late for all but one larva in 1970, and this failed to produce an imago. I had hazarded that this would prove to be a good species because the mines looked distinct and the larvae fed earlier. So I started to look sooner for them in 1971 and found a good many; but the seeds of doubt were sown in my mind because the mines were variable and graded into the form typical of *ulmivora*.



Whenever I have problems over the Nepticulidae, I consult the long-suffering Dr Klimesch. In reply to my queries he wrote as follows on the 20th November, 1971:—"According to my opinion the *Ulmus*-feeding species *ulmicola* Hering and *ulmifoliae* Hering are mine-forms of *ulmivora* Fologne as the adults of the mentioned forms do not represent any differences between each other. I have always observed that *ulmicola* occurs in thick leaves only in sunny places, while *ulmifoliae* mines are to be found only in shady places. *N. ulmi* Skala is a very problematic species described on a doubtful mine only, as Skala did in some other cases (viz. *brunensis*, *pseudoplatanella*, *fulvomacula*, *oxysorbi*). On the other side, *ulmiphaga* Preissecker is a good species! I found it only near Vienna. The mine likes very much to *ulmifoliae*; it is very sinuous with a thin frass. The imago is quite different from *ulmivora* as it is of one colour, shining bronzy like *viscerella*".

Let us first consider *ulmifoliae* and *ulmicola*. The leaves in my herbarium confirm Dr Klimesch's verdict that the former occur in the thin leaves and the latter in thick. That the former occur in shady places and the latter in sunshine is consistent with my recollections and I have since confirmed it by further observation. Larvae in thick leaves in sunny spots might well feed up faster, and that would explain why I was deluded in 1970 into thinking *ulmicola* an earlier species. The larvae which I collected in *ulmicola*-type mines in September 1971 duly produced typical *ulmivora* in June 1972, giving still further corroboration to Dr Klimesch's views.

It remains to discuss the position of *ulmiphaga* Preissecker, which, as Dr Klimesch has told us above, is a good species. Let me 'recap' on its history as a British insect.

(1). *Stigmella ulmiphaga* Preissecker 1942 was added to the British list on the evidence of vacated mines determined by Professor Hering (Richens 1963).

(2). The name was changed to *ulmi* Skala 1934 in obedience to the rule of priority.

(3). In 1970-71 it was demonstrated by breeding that *ulmivora* has a mine-form indistinguishable from the mine of *ulmi* (*ulmiphaga*). This had two effects:—(a) Skala's name *ulmi* which was given only to a mine, could refer either to *ulmivora* or *ulmiphaga* and so lost validity. Therefore the name *ulmiphaga* was reinstated. (b) There are no longer any grounds for regarding *ulmiphaga* as a British insect. Since the name has been used in our literature, it must be retained for reference purposes in the Kloet and Hincks check-list, but it is marked with an asterisk to show the moth's status as British is in dispute.

A couple of years ago we had seven elm-feeding Nepticulidae on the British list; now we are back to the original three plus one recorded in error. Their names, brought together from their several positions on the check-list are as follows:—



*Stigmella viscerella* (Stainton 1853)

\**Stigmella ulmiphaga* (Preissecker 1942)

?*ulmi* (Skala 1934)

*Stigmella ulmivora* (Fologne 1860)

*ulmicola* (Hering 1932)

*ulmifoliae* (Hering 1931)

*Nepticula marginicolella* (Stainton 1853)

*fulvomacula* (Skala 1936)

It remains to outline the main research still outstanding with regard to the known species of British Nepticulidae.

(1). Study is needed of *aurella* and its close relatives (*nitens*, *gei*, *fragariella*, *dulcella*) to decide their status as species or biological forms.

(2). A similar study must be made of *poterii* and its relatives (*serella*, *tengstroemi*, together possibly with *ulmariae* and *filipendulae*).

(3). We need to know whether (a) *oxyacanthella* and *aeneella*, and (b) *betulicola* and *nana* represent one or two species respectively.

(4). Six species, *tormentillella*, *tengstroemi*, *vimineticola*, *samiatella*, *ulmiphaga* and *sericopeza*, are recorded on doubtful evidence, and their status as British species needs clarification.

(5). There is a possibility that several names which have been reduced to synonymy (*fulgens*, *fletcheri*, *hodgkinsoni*) may, after all, belong to good species.

(6). We need to find out what is meant by *castanella* Stainton.

(7). We have yet to breed *aceris* in Britain or capture an imago.

(8). We must try to rediscover *torminalis*. It was recorded only by Wood, who stated that it was "confined to a small corner of one wood" at Tarrington in Herefordshire.

(9). We do not yet know the foodplant and life-history of *grisella* or the life-history of *svenssoni* except in the general sense that it is not obviously dissimilar from that of its oak-feeding relatives.

I hope that readers who can furnish answers, comprehensive or fragmentary, to any of these problems will publish their information.

#### REFERENCES

- Adkin, R. (1933). *Nepticula decentella* H.-S. (Lep.) A species new to Britain. *Entomologist*, **66**: 35.
- Beirne, B. P. (1945). The male genitalia of the British Stigmellidae. *Proc. Roy. Irish Acad.* 50B No. 9 pp. 191-218.
- Brown, S. C. S. 1964). *Stigmella aeneella* (Hein.) A Species New to Britain. *Ent. Rec.*, **76**: 23.

- Emmet, A. M. (1970). *Stigmella spinosella* Joannis (Lep. Nepticulidae): A Species new to Britain. *Ent. Record*, **82**: 121.
- Emmet, A. M. (1971). Notes on some of the British Nepticulidae. *Ent. Record*, **83**: 75-83; 136-142; 163-171; 240-248; 278-282; 300-304.
- Ford, L. T. (1948). President's Address, *Proc. S. Lond. ent. nat. Hist. Soc.* 1947-1948.
- Ford, L. T. (1949). *A Guide to the Smaller British Lepidoptera*. London.
- Heinemann, H. von. (1862). *Die Schmetterlinge Deutschlands und der Schweiz*, 1855-1877. Braunschweig.
- Hering, E. M. (1957). *Bestimmungstabellen der Blattminen von Europa*. Uitgeverij Dr W. Junk, 'S-Gravenhage.
- Heslop, I. R. P. (1964). *Revised Indexed Check-List of the British Lepidoptera*. London.
- Jäckh, E. (1951). Die fruchtminierenden Arten der Gattung *Nepticula* Heyd. (*Etainia* Beirne) an den vier deutschen Ahornarten. *Wiener Entomologischen Gesellschaft*, **36**: 170-178.
- Johansson, R. (1971). Notes on the Nepticulidae (Lepidoptera) I. *Ent. Scand.*, **2**: 241-262.
- Meyrick, E. (1895). *A Handbook of British Lepidoptera*. London.
- Meyrick, E. (1928). *A Revised Handbook of British Lepidoptera*. London.
- Parmenter, L. (1952). *Stigmella samiatella* Zell. (Lep. Stigmellidae) as a British insect. *Ent. mon. Mag.* **88**: 286.
- Petersen, W. (1930). Die Blattminierer-Gattungen *Lithocolletis* und *Nepticula* II. *Stettin. Ent. Zeit.*, **91**: 1-82.
- Richens, R. H. (1963). Four new Stigmellid Elm-leaf Mines. *Ent. Gaz.*, **14**: 36.
- Sorhagen, L. (1886). *Die Kleinschmetterlinge der Mark Brandenburg*, Berlin.
- Stainton, H. T. (1849). *Catalogue of the Tineina*. London.
- Stainton, H. T. (1854). *Insecta Britannica, Tineina*. London.
- Stainton, H. T. (1855). *The Natural History of the Tineina*, Vol. I. London.
- Stainton, H. T. (1867). A few Observations on the Sycamore-feeding *Nepticula decentella*. *Ent. mon. Mag.*, **4**: 75-76.
- Stainton, H. T. (1887). A new species of *Nepticula* bred from Birch from Herefordshire (*N. woolhopiella*) *Ent. mon. Mag.* **24**: 62.
- Tutt, J. W. (1899). *A Natural History of the British Lepidoptera*, Vol. I. London.
- Wakely, S. (1937). *Stigmella* (*Nepticula*) *suberivora* Stainton. *Ent. Record*, **49**: 128.
- Waters, E. G. R. (1928). *Nepticula suberivora* Stainton in the Isle of Wight. *Ent. mon. Mag.*, **64**: 248.
- Wood, J. H. (1894). Notes on the early stages of the Nepticulidae. *Ent. mon. Mag.*, **29**: 197-201; 268-274; **30**: 1-4; 43-50; 150-154.

## POSTSCRIPT

### Oak-Feeding Nepticulidae of the *Ruficapitella* Group

As more information has come to hand since I wrote the above notes, I venture to expand and correct what I then

wrote. A very useful addition to the literature on the subject, and one to which I shall refer, is *Studien an Nepticuliden* (Lepidoptera) 5 by A. Borkowski (Bull. ent. Pol., 42: 767-799). This paper, written in German, covers the same ground as Johansson, 1971 (Ent. Scand., 2: 241-242), but in fuller detail.

*Stigmella atricapitella* Haw. There appears to be seasonal variation in the mine form. Summer mines are relatively short with a thick frass-line, as I described them, whereas late autumn mines are longer and narrower with thin linear frass. Johansson illustrates the summer form and Borkowski the autumn form. I have bred the imago from each form in its respective season. I cannot at present distinguish the autumn form from the mine of *roborella* Johansson.

*Stigmella svenssoni* Johansson. During 1973 I bred two specimens, one on 31st March from a larva taken at Ambleside, Westmorland, on 10th August 1972, and the other on 28th April from a larva taken at Thorpeness, Suffolk, on 10th September 1972. These are the third and fourth recognised British specimens, their localities further demonstrating how widely distributed the species is in Britain. The dates are of interest since they suggest that the insect is univoltine, with larvae feeding for the most part between the generations of the other members of the group. Mr Svensson, in whose honour the moth is named, told me on his visit to England in 1972 that he, too, regards it as single-brooded. Specimens of *svenssoni* tend to be larger than those of related species and to be more coarsely scaled, especially towards the apex of the forewing. The mine is relatively broad and long with dispersed frass, like a large edition of *ruficapitella*. The scarcity of *svenssoni* in collections may spring from our throwing away cocoons from mid-summer larvae if they fail to produce imagines later in the year.

In my *Notes* I stated that I was giving my Madingley specimen to the British Museum (Natural History). That specimen suffered accidental damage so I have presented the one from Ambleside in its place.

Finally let me correct two errors in Borkowski's paper which were caused by blunders on my part and are in no way attributable to the author. The specimen of *Stigmella suberivora* Stainton referred to on page 773 and illustrated (genitalia) at fig. 17, was taken, not at Madingley, as stated, but at Camberwell, South London. An accidental fall caused several specimens to part company with their staging and in replacing them I must have interchanged a *suberivora* and an *atricapitella*. There is no holm-oak at Madingley and *suberivora* has not, as yet, been recorded from Cambridgeshire. I am also responsible for the mis-spelling "Maddingley"; until the name appeared in *The Times* crossword puzzle (doubtless in quotation from Rupert Brooke), I had not realised that it had only one "d". I apologise to Borkowski for misleading him.

Labrey Cottage, Victoria Gardens,  
Saffron Walden, Essex.



# A Species of the Boreal Genus *Cosmetopus* Becker (Dipt., Scatophagidae) New to the British Isles, taken by the River Test in Hampshire

By P. J. CHANDLER

(Weston Research Laboratories, 644 Bath Road, Taplow, Maidenhead, Berks)

and A. E. STUBBS

(91 Clitherow Avenue, Hanwell, London W.7.)

On 21st June 1970 we were collecting along the banks of a backwater of the River Test on the Leckford Estate near Stockbridge, North Hampshire, when a female of a rather small fly of undistinguished appearance, belonging to the Family Scatophagidae and rather similar in build and coloration to *Chaetosa punctipes* Mg., was swept from waterside vegetation by one of us (AES). As this insect proved to be a species not hitherto recorded from the British Isles, we have frequently revisited the collection locality to seek further specimens. Most of these visits have proved unsuccessful but on 4th July 1971, two more females were beaten (by PJC) from the foliage of an osier (*Salix viminalis* L.) overhanging the river not far from the spot where the first was taken. Unfortunately no males of this species have yet been collected in Britain.

Preliminary examination of the insect, which is predominantly grey dusted with yellow legs and has a rather striking orange coloration to the frons, showed that it was not *C. punctipes*. The latter species, which we have taken elsewhere on the Leckford Estate and at Windsor, Berks, and Thursley Common, Surrey, differs in several important respects, notably the possession of two sternopleural bristles (only one in our specimens) and a pointed tip to the third antennal joint. The most recent revision of the British species of this family was by Collin (1958) and the only more recent additions to the British list of which we are aware were our discovery of *Norellia spinipes* Mg. in southern England (Chandler & Stubbs, 1969; Chandler, 1970) and the additions made by Nelson (1965, 1972) in the north of England of *Scoliaphleps ustulata* Zetterstedt and *Coniosternum tinctinervis* Becker.

## Taxonomic Discussion

In Collin's key to the genera our specimens ran to the genus *Microprosopa*. Of this genus, however, he knew of only one British species, *M. pallidicauda* Zett. (*pallidicauda* of Collin), which is known only from the Spey Valley in Scotland. We were already in possession of North American specimens of *M. pallidicauda* kindly given to us by Dr J. R. Vockeroth and comparison with these showed that the Leckford specimen was certainly a distinct species. As Collin (*op. cit.*) stated, two other species of the genus *Microprosopa* had been erroneously recorded from Britain by earlier authors, i.e. *M. hae-*



*morroidalis* Mg. and *M. heteromyzina* Zett. Reference to the key to the Palaearctic species of the genus given by Sack (1937) showed that our fly could not belong to any of the three species mentioned above and it was found to run readily to *M. fulvipes* Zett., on the basis of a pale haired grey dusted black abdomen, palpi darkened and mainly yellow antennae. It agreed almost entirely with the longer description given by Sack for *M. fulvipes* except with regard to his comments on the sexual differences in the colour of the antennae; he stated that the male antennae have the third joint reddish yellow and brownish at the tip while in the female the antennae are entirely brown. Our specimens, which are females, have the antennae entirely yellow except for a slight brown discoloration on the anterior margin of the third joint.

Subsequent to Sack's work on the Palaearctic species, Hackman (1956) produced his revision of the Scatophagidae of Finland. In this paper on page 24 he gives a full account of his reasons for synonymising *M. fulvipes* with *Cosmetopus bergrothi* Becker (1900). Zetterstedt's original description of *fulvipes* was from a single Swedish female and Becker (1894) wrongly associated this with the male of another species and so placed *fulvipes* in *Microprosopa* although the type specimen and description agreed substantially with the female of his species *C. bergrothi*, described in 1900 from Siberian specimens. In view of this, Hackman proposed that the species should be known as *Cosmetopus fulvipes* (Zett.). The genus *Cosmetopus* is distinguished from *Microprosopa* in the male by a ventral apophysis on the front femur which fits into a notch in the tibia, while the female is distinguished by the shape of the palpi, more elongate and widening subapically in *Cosmetopus* but lancet shaped, i.e. widest just after the middle in *Microprosopa*.

Our specimens were submitted first to Dr J. R. Vockeroth, who confirmed that they belonged to the genus *Cosmetopus*. He wrote on March 16th 1972 that these specimens were not *longus* Walker, so he assumed that they must be *dentimanus* Zetterstedt, 'the only other Palaearctic species known'. He further remarked that he and Hackman did not agree on the identity of the type female of *C. fulvipes* Zetterstedt; Vockeroth considered it to belong to *dentimanus* but Hackman (as mentioned above) had decided it to be *bergrothi* (= *longus*). Dr Vockeroth sent one of the flies to Mr H. Andersson at Lund for comparison with type material; recent information received by us from Dr W. Hackman (*in. litt.*, 15.x.1973) has confirmed that Vockeroth's view is correct. Dr Hackman has said that he was mistaken in synonymising *bergrothi* with *fulvipes* and he now accepts the synonymy of *dentimanus* Zetterstedt = *fulvipes* Zetterstedt and in the case of the other species *longus* Walker = *bergrothi* Becker.

The three British females would therefore appear to belong to the species *Cosmetopus dentimanus* Zetterstedt and we are adding it to the British list under this name. The female

of this species is apparently distinguished from that of *longus* and that of a yet undescribed Swedish species (Hackman, *in litt.*) by having less spatulate palpi. Dr Hackman refers to variation in colour of the antennae and palpi in *dentimanus* females. In the British specimens the third antennal joint is entirely yellow while the palpi are widely darkened apically, being only slightly paler towards the base. Apparently in Swedish specimens there is variation in the colour of the third antennal joint, which may be dark on the apical third only or on the apical two thirds, in both instances having the palpi dark only at the tip, while two Finnish specimens have a strongly darkened third antennal joint, only yellow at the base and entirely dark palpi. As *Cosmetopus* are nowhere common and only limited material is available of all species (both European and Nearctic), Dr Hackman reasonably comments that the taxonomic value of these colour characters is difficult to judge but he suggests on the basis of the variation in the Fennoscandian specimens that the colour of the third antennal joint and palpi may vary independently.

There appears at present to be no reason to doubt that our specimens are conspecific with *C. dentimanus*, but the discovery of males in this country is hopefully awaited so that this may be confirmed without doubt. The possibility certainly cannot be excluded that the Leckford specimens represent an undescribed species, bearing in mind the far cry of their habitat from the previously known haunts of this species.

### Distinguishing characters

*C. dentimanus* is a slender bodied predominantly grey dusted fly (length 5 mm.) with yellow legs and slightly yellow tinged wings. As it runs to *Microprosopa* in Collin's (*op. cit.*) key, it is probably most helpful to detail the salient features (apart from the generic characters mentioned above) by which it may be separated from *M. pallidicauda*. With the aid of these distinctions there should be no possibility of confusion resulting in the identification of future material collected of these species. A representative specimen will be deposited in due course in the collection of the British Museum (Natural History). Should the male be taken here it may be easily recognised from the figure by Séguy (1952) of the entire insect (lateral view).

*Dusting of body* ashy grey in *pallidicauda*; golden yellow tint on dorsum of thorax in *dentimanus*.

*Bristles of head and thorax* all black in *pallidicauda*; verticals, ocellars, vibrissae and pleural bristles yellow in *dentimanus*, although other bristles are black.

*Frontal stripe* mainly pale dull yellow, grey above, in *pallidicauda*; bright orange yellow in *dentimanus* (the head is otherwise mostly yellow but for the grey dusted occiput in both species).

*Antennae* entirely black in *pallidicauda*; at least partly yellow in *dentimanus* (mainly yellow in British specimens with only slight darkening along entire anterior margin of third

joint).

*Palpi* entirely yellow in *pallidicauda*; darkened at least apically in *dentimanus* (mainly greyish brown, slightly paler at the base in British specimens).

*Fore femora* in the female of *pallidicauda* with only fine pale hairs beneath; in *dentimanus* these femora have a strong ventral swelling on the basal three-fifths bearing thick pale hairs and at the point where it rapidly narrows to the slender apical portion a few short black spines are present.

*Mid and hind tibiae* with one or two posterodorsals as well as anterodorsals in *Microprosopa*; mid tibiae with a median anterodorsal and hind tibiae with two anterodorsals (one median, the other basad to it) but no posterodorsals on either in *dentimanus*.

### Habitat considerations

The Leckford locality of *C. dentimanus* may be summarised as the banks of a small calcareous river running through peaty fenland and with a rich flora at the transition between open fen, carr and drier fen woodland.

*Cosmetopus*, according to Dr Vockeroth (*in litt.*) belongs to the group of genera within the Scatophagidae, which probably have predaceous larvae living in subaquatic or aquatic situations. Other genera in Britain probably belonging to this group are *Microprosopa*, *Pogonota*, *Chaetosa* and *Trichopalpus* although only in *Spaziphora* has the life cycle been fully worked out — the predaceous larvae in sewage beds and stagnant water (Lloyd, Graham & Reynoldson, 1940). The ovipositors in these genera are apparently of the type found in *Scatophaga* itself, suggesting that the eggs are probably inserted into a wet substrate, e.g. soil while the phytophagous genera (e.g. *Norellia*, *Gimnomera*, *Cordilura*, *Delina*, etc.) have ovipositors of different types enabling them to oviposit in their respective food-plants. It would appear likely then that the larval habitat of *C. dentimanus* at Leckford is the river itself or the peat of the adjacent fen.

Although flies of the genus *Cosmetopus* are recorded from moist habitats (Hackman, *op. cit.*), the existing records are from Northern Europe (Fennoscandia and Siberia) in boreal or subarctic situations and from the Swiss Alps. In view of the previously known distribution of the genus, therefore, its discovery in this lowland locality in southern England is particularly remarkable albeit that the concentrated collecting we have carried out on the Leckford Estate has shown it to have a very rich Dipterous Fauna, including at least thirteen species of Scatophagidae. There are many localities of a similar nature elsewhere in Britain and the fly must surely turn up in other places if looked out for.

### Acknowledgements

We would like particularly to express our thanks for the kindness shown in elucidating the identity of the flies recorded here by Dr J. R. Vockeroth (Ottawa), Mr H. Andersson (Lund) and Dr W. Hackman (Helsinki). The flies were collected in



the area administered by the Leckford Estate (John Lewis Partership) but not within any of the series of small nature reserves which have been set aside for long term entomological study and we have to thank the administrators of the Estate for the opportunity to participate in the Biological Survey which has been in progress there now since 1969.

### References

- Becker, T. (1894). Dipterologische Studien. I. Scatomyzidae, *Berl. ent. Zeit.*, **39**: 77-196.
- Becker, T. (1900). Beiträge zur Dipteren-Fauna Sibiriens. Northwest-Sibirische Dipteren gesammelt von Prof. John Sahlberg aus Helsingfors im Jahre 1876 und Dr E. Bergroth aus Tammerfors im Jahre 1877, *Acta Soc. Sci. Fenn.*, **26**: 66.
- Chandler, P. J. & Stubbs, A. E., (1969). A species of *Norellia* R.-D. (Dipt., Scatophagidae) new to Britain, *Proc. Brit. ent. nat. hist. Soc.*, **2** (4): 120-124
- Chandler, P. J., (1970). A supplementary note on *Norellia* R.-D. (Dipt., Scatophagidae), *Proc. Brit. ent. hist. Soc.*, **3** (1): 12.
- Collin, J. E., (1958). A short synopsis of the British Scatophagidae (Dipt.), *Trans. Soc. Brit. Ent.*, **13** (3): 37-56
- Hackman, W. (1956). The Scatophagidae of Eastern Fennoscandia, *Faun. Fenn.*, **2**: 1-67.
- Lloyd, L. L., Graham, J. F. & Reynoldson, T. B. (1940), Materials for a study in animal competition. The fauna of the sewage Bacteria Beds *Ann. appl. Biology*, **27**: 122-150.
- Nelson, J. M. (1965). *Scoliaphleps ustulata* Zetterstedt (Dipt., Scatophagidae) new to Britain, *Entomologist*, **98**: 65.
- Nelson, M. (1972) *Coniosternum tinctinervis* Becker, a Scatophagid fly new to Britain (Diptera), *Entomologist's Gaz.*, **23**: 247-248.
- Sack, P. (1937). Die Fliegen der Palaarktischen Region (E. Lindner). 62. Cordyluridae. 1-103. Berlin.
- Seguy, E. (1952). Diptera. Fam. Scatophagidae. IN Wytsman, P. (Ed.), *Genera Insectorum*, **209**: 1-107

## *Andricus lignicolus* (Hartig) (Hym.: Cynipidae) in S.E. England: A Species New to Britain

By MARGARET M. HUTCHINSON  
(The Croft House, Inval, Haslemere, Surrey)

On 25th October 1972 I found six small galls which I took to be poor specimens of the agamic form of *Andricus kollari* (Hartig) ("Oak marbles"). They were on a small tree of *Quercus robur* along the Rhinefield Ornamental Drive near Brockenhurst in the New Forest. They were woody, rough and scaly. Four had emergence holes. I took the other two home and numbered them 438vs (very small) and 439vs. I kept them in separate phials with the oak marbles I was studying for breeding.

On 29th June 1973 I opened them. 438 was empty; 439 contained a dead perfect insect that was brown like a small specimen of *A. kollari*. I kept it with its gall as an instance of a small gall producing a perfect insect and not parasites as



is generally the case.

On 29th September 1973 I found on Wiggonholt Common near Pulborough, West Sussex, a cluster of three galls similar to those from the New Forest. On a nearby tree were a few more. I also found *Andricus corruptrix* (Schlechtendal) agamic form, and *A. kollari*. I felt sure now that these galls were not *A. kollari* for on close examination they were all scaly, light grey brown with "light red" (as in a paint box) patches where the scales burst open. They all measured between eight and ten millimetres across by seven to eight tall. They grew from leaf scars, evidently usurping the place of 1973 buds.

On 4th October I found a similar gall<sup>\*</sup> at Inval, Haslemere, my home. On visiting Wiggonholt Common again on 22nd October I found a number more, most of which I left, but brought home a twig with nine galls on it.

From 30th October to 3rd November I was in the New Forest where I found similar galls in small numbers in six different localities. All were on *Q. robur*. At Inval again I found one on a large *Q. robur* and one on a stunted growth on 12th November and 9th December respectively. These I left on the trees, marking their twigs with coloured string.

There seems no doubt that this is a new gall to Britain, *Andricus lignicolus* (Hartig), clearly illustrated in Dr Van Leeuwen's "Gallenboek" and described by him also in *Tijdschrift v. Entomologie*, 1956, vol. 98. It is closely allied to *corruptrix* and *kollari*, and all three use *Quercus cerris* as the host of the sexual generation.

Young specimens of *corruptrix* have the same warty appearance and same colouring when seen under magnification. As they become weathered the scales wear off, at least over the top, which becomes shiny and lobed, and are therefore quite unlike *lignicolus* in shape as well as in size, for they are much smaller.

The mature insects of *corruptrix* I have found to emerge between late May and early August. Van Leeuwen gives July as the month in which *lignicolus* emerges.

One very small *lignicolus* that was growing up against a larger one yielded a female Chalcid parasite, *Mesopobus tibialis* (Westwood) on 2nd December 1973. Mr John Quinlan of the Department of Entomology, British Museum, who has been kindly helping me with my investigations, identified this parasite. Both he and I have specimens of *lignicolus* from which we hope to procure perfect insects. These may then be examined by Mr Quinlan and positioned in the key to British Hymenopterous gall causers.

Now, here is the rub. As long ago as 1968 I had brought in an insignificant, malformed "oak marble" which I only kept because I failed to throw it away. In March 1969 I found it had yielded up its insect, but it was mouldy and had NO LABEL. I still kept it for interest. On examining it recently it proved to be *Andricus lignicolus*, and is actually the first record for the British Isles. Well — one lives and learns!

# Notes on the Genus *Utetheisa* Hübner (Lepidoptera : Arctiidae) in the Western Pacific with Larval Descriptions

By GADEN S. ROBINSON  
(Dept. of Zoology, University of Durham)

and H. S. ROBINSON  
(P.O. Box 5090, Raiwaqa, Suva, Fiji)

Following the discussion of the Fijian species of *Utetheisa* Hubner by G. S. Robinson (1971) we obtained and bred larvae of *Utetheisa lotrix stigmata* Rothschild, *Utetheisa pulchelloides marshallorum* Rothschild and *Utetheisa clareae* Robinson from Fiji. *Lotrix* specimens were from Tavua, northern Viti Levu, *pulchelloides* from Singatoka, southern Viti Levu and *clareae* from Savusavu, southern Vanua Levu. In June 1971, G. S. Robinson obtained larvae of *Utetheisa salomonis* Rothschild from the southern coast of Efate, New Hebrides. These were bred both in the New Hebrides and in Fiji. Alcohol-preserved specimens and inflated larval skins of all species have been prepared. The larvae, illustrated in dorsal and lateral view in the plate, are of a pattern consistent within species and markedly different between species. They can be identified as follows:

**U. pulchelloides marshallorum** Rothschild (plate X, fig. 2)

Base colour bright lemon yellow with black patterning. Dorsal stripe interrupted by single black bands. Head dark tan.

Foodplants: Boraginaceae especially *Messerschmidia argentea*. Feeds on upper epidermis of leaves.

**U. salomonis** Rothschild (plate X, fig. 3)

Base colour orange-brown with black patterning. Dorsal stripe not interrupted, though it carries bands of darker ground colour at the centre of each segment. Head black or brownish black.

Foodplants: Boraginaceae especially *Messerschmidia argentea*. Feeds on upper epidermis of leaves.

**U. clareae** Robinson (plate X, fig. 4)

Base colour pale lemon yellow with black patterning. Dorsal stripe not interrupted. Head light tan.

Foodplants: Boraginaceae especially *Messerschmidia argentea*. Feeds on upper epidermis of leaves.

**U. lotrix stigmata** Rothschild (plate X, fig. 1)

Base colour lemon yellow with black and orange patterning. Dorsal stripe interrupted by pairs of black bands with an orange band between. Head light tan.

Foodplants: Papilionaceae especially *Crotalaria* spp. Feeds on leaves (but see footnote).

PLATE X



1



2



3



4

1. *Utetheisa lotrix stigmata* Roths.
2. *Utetheisa pulchelloides marshallorum* Roths.
3. *Utetheisa salomonis* Roths.
4. *Utetheisa clareae* Robinson

Dorsal and lateral views of larvae  $\times 2$





The distribution and development of these four species may be explained in the western Pacific area by the distribution of the foodplants. *Crotalaria* and associated Papilionaceae are common in all the islands and well spread across lowland areas especially where these are cultivated. Accordingly any dispersal of *U. lotrix* can find a ready home and if blown from one area to another by strong winds has no difficulty in finding supplies of foodplant.

The three remaining species find themselves in a very different situation. The only endemic species of the Boraginaceae is *Messerschmidia argentea* (Linn. f.) Johnston (*Tournefortia argentea* Linn. f.) and the distribution of this plant is very specialised. It occurs only at high tide mark, usually on the prevailing windward side of islands, where there is coral sand. The latter substrate appears to be necessary for seed germination.

*Messerschmidia* thus forms a very thin interrupted band along limited stretches of coast and a dispersal of any of the three Boraginaceae-feeding species has therefore a limited chance of reaching the foodplant and if blown from it, little chance of returning to it or coming across a new supply.

Observation of the colonies of each of these three species shows them to be consistently sedentary in behaviour. The imagines rest always on the foodplant and if disturbed fly into the wind in a circle and return to it and it would appear that this specialised behaviour is essential to their survival.

This behaviour of course ensures that each colony tends to become increasingly inbred and to retain only sedentary individuals and the likelihood of speciation in the Boraginaceae-feeding group could therefore be expected to be high and this is in fact the case.

*U. lotrix* on the other hand has entirely different behaviour. The imagines settle on all types of vegetation and when disturbed fly widely to leeward and accordingly the colonies which are a feature of the Boraginaceae—feeding species do not exist in *lotrix* which is widely spread and therefore unlikely to speciate. In fact only one subspecies of *lotrix* has been described and we are in some doubt as to whether *stigmata* is consistently separable from typical *lotrix* as suggested by Jordan (1939).

Footnote: Swain (1971) states that *U. lotrix* feeds on seed-pods of *Crotalaria* and illustrates an undoubted larva of *lotrix* on a stem of *Crotalaria* below a damaged pod. The authors have never seen damage to seed-pods by *lotrix* even on stands of *Crotalaria* where infestation is very heavy. In captivity larvae cannot be induced to eat seed-pods even when given no other food. The larvae of the Hypsid species, *Argina cribaria* Clerck, might, with their orange and black bands, be mistaken when small for larvae of *lotrix* and these *do* damage seed-pods in exactly the manner shown in the illustration. It is possible that Swain's larva is an innocent bystander at the scene of another's crime.

During the Royal Society and Percy Sladen New Hebrides Expedition in 1971, G. S. Robinson collected a long series of *U. salomonis* Rothschild from several islands. *Utetheisa lotrix* was collected from only one locality and a single faded male specimen of what we consider to be *Utetheisa pulchelloides vaga* Jordan was collected at light at Wintoua, South West Bay, Malekula. This Australian subspecies is a migrant to New Zealand (Fox, 1973) and this is the first record of it from the tropical Pacific (see footnote). The distribution of *Utetheisa* species in the New Hebrides is shown on the map.

In June 1971, H. S. Robinson collected *U. lotrix stigmata* Roths. from Honiara, Guadalcanal, British Solomon Is. Protectorate. *Utetheisa salomonis* has been collected from the coast of New Caledonia (J. D. Holloway — pers. comm.).

We have been able to examine photographs of the type (in the U.S. National Museum, Washington) of *Utetheisa idae* Gates Clarke (1940—see also Forbes, 1941). It is a specimen of *Utetheisa pulchelloides marshallorum* Rothschild (syn. n.). The type locality of this species is given as Swain's Island, Newfoundland and we believe the type locality to be erroneous. We consider that Swain's Island, American Samoa is the probable source of the specimens.

### Summary

The larvae of the four *Utetheisa* species inhabiting the islands of the western Pacific are described. Choice of food-plant of the species is related to distribution and behaviour. New locality records of *Utetheisa* species are given. *Utetheisa idae* Gates Clarke is synonymised with *Utetheisa pulchelloides marshallorum* Rothschild.

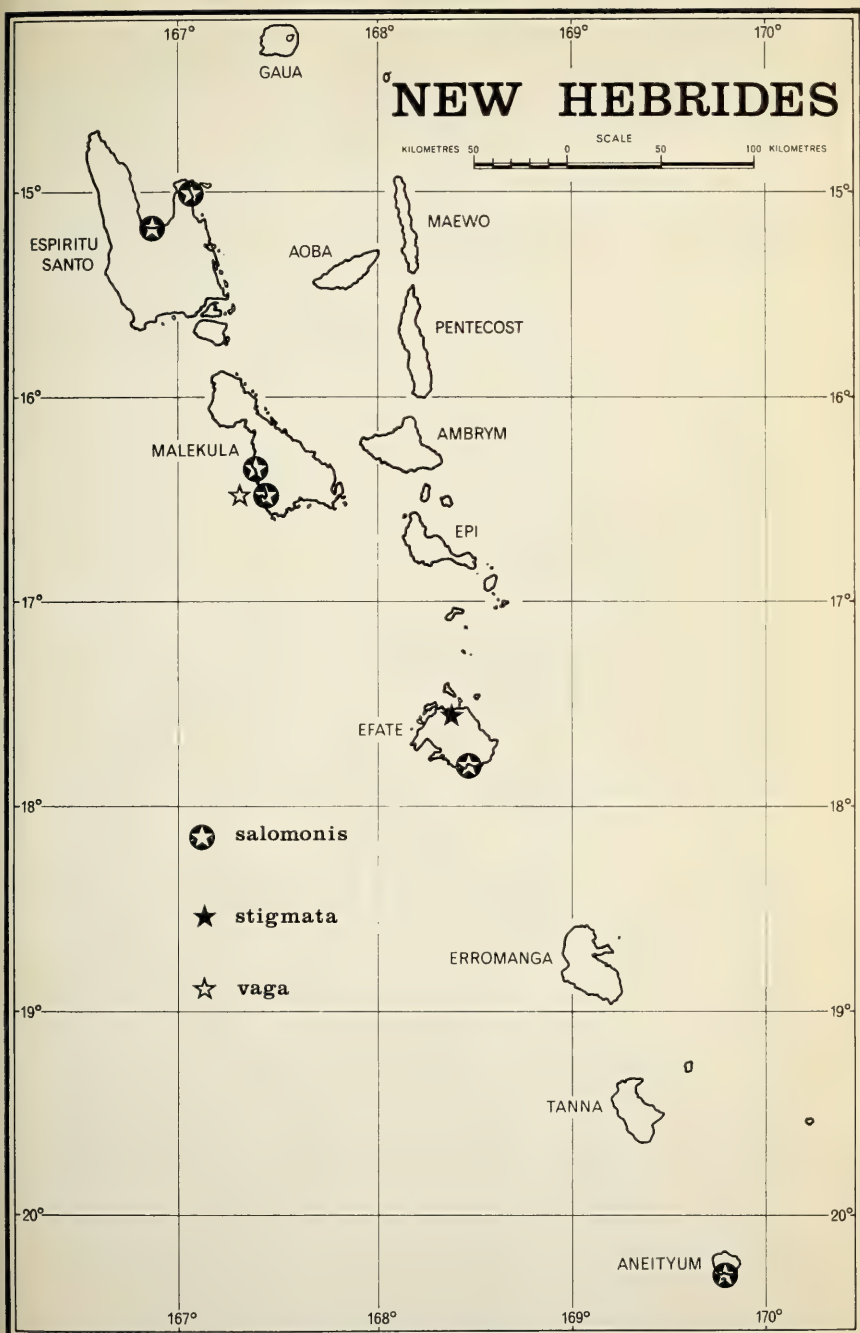
### Acknowledgements

We are indebted to Mr A. H. Hayes of the British Museum (Natural History) for the photographs of the type of *Utetheisa idae* Gates Clarke and for drawing our attention to its existence. Dr K. E. Lee of the CSIRO Division of Soils, Adelaide, prepared the map of the New Hebrides. G. S. Robinson gratefully acknowledges support by the Royal Society, the Percy Sladen Trust and the Science Research Council of the research of which this paper is a part.

### References

- Forbes, W. T. M. (1941). The position of *Utetheisa galapagensis* (Lepidoptera, Arctiidae). *J. N. Y. ent. Soc.*, **49**: 101-110.  
Fox, K. J. (1973). Migrant Lepidoptera in New Zealand. *N. Z. Entomologist*, **5**: 143-146.

Footnote: The capture of *U. pulchelloides vaga* Jordan on Malekula on 10.x.1971 coincides with a massive immigration of *vaga* into New Zealand: Fox (1973) records the first New Zealand arrivals on 4.x.1973.



Map of the New Hebrides showing localities of collection of *Utetheisa* species.





- Gates Clarke, J. F. (1940). A new species of *Utetheisa* from Newfoundland (Lepidoptera, Arctiidae). *Proc. ent. Soc. Wash.*, **42**: 42-44.
- Jordan, K. (1939). On the constancy and variability of the differences between the Old World species of *Utetheisa* (Lepidoptera, Arctiidae). *Novit. zool.*, **41**: 251-291.
- Robinson, G. S. (1971). The genus *Utetheisa* Hubner in Fiji with a description of a new species (Lepidoptera, Arctiidae). *Entomologist's Rec. J. Var.*, **83**: 123-130.
- Swain, G. (1971). *Agricultural Zoology in Fiji*. xix+424 pp., 13 figs., 374 pls. HMSO, London.

## M.V. Recordings, Hampton Wood, Warwickshire

By A. F. J. GARDNER

(Wood Cottage, Grove Fields, Hampton Lucy, Near Warwick)

For the last two years I have been running a Robinson moth trap with a 125 watt M.V. bulb in the garden of my home which backs on to Hampton Wood. This wood consists of approximately 18 acres and is situated between the villages of Barford and Hampton Lucy near Warwick. It was cut considerably around wartime and left for grazing cattle, consequently there are few species of low-growing plants and large bramble and hawthorn thickets have grown up. The trees are mainly deciduous and in some variety with about a dozen conifers surrounded by large clearings.

I have taken 296 species of larger moths at light, except for *Saturnia pavonia* L. which flew to a cage of newly hatched females situated in the garden. The following is a list of the more interesting species taken:—

*Clostera curtula* L., two; *Achlya flavicornis* L., common; *Polyplocia ridens* F., three; *Leucoma salicis* L., one; *Lycophotia varia* de Vill., two; *Rhyacia simulans* Hufn., fairly common; *Spaelotis ravida* D. & S., three; *Polia nitens* Haws., five; *P. nebulosa* Hufn., one; *Orthosia populeti* F., one; *Xylomyges conspicillaris* L., one; *Cucullia umbratica* L., fairly common; *C. chamomillae* D. & S., fairly common; *C. verbasci* L., fairly common; *Lithophane semibrunnea* Haw., two; *Dryobotoides eremita* F., fairly common; *Eupsilia transversa* Hufn., one; *Tiliacea aurago* D. & S., fairly common; *Cryphia perla* D. & S., four; *Apamea unanimitis* Hübn., one; *Apamea ophiogramma* Esp., ten; *A. scolopacina* Esp., one; *Eremobia ochroleuca* D. & S., two; *Celaena leucostigma* Hübn., one; *Pyrria umbra* Hufn., one; *Cosmia pyralina* D. & S., fairly common; *C. affinis* L., fairly common; *C. diffinis* L., thirteen; *Rhizedra lutosa* Hübn., three; *Nonagria typhae* Thunb., one; *Nycteola revayana* Scop., one; *Polychrisia moneta* F., four; *Plusia festucae* L., two; *Trichiura crataegi* L., fairly common; *Gastropacha quercifolia* L., five; *Lithosia complana* L., three; *Geometra papilionaria* L., two; *Nycterosea obstipata* F., two; *Larentia clavaria* Haw., six;

*Mesoleuca albicillata* L., one; *Perizoma bifaciata* Haw., one; *Euphyia unangulata* Haw., fairly common; *Chloroclysta miata* L., one; *Rheumaptera undulata* L., one; *Chesias legatella* D. & S., one; *Chiasmia clathrata* L., one.

Numbers of species per month in 1972 were: January (1); March (13); April (21); May (41); June, 72; July, 145; August, 139; September, 78; October, 46; November, 21; December, 3.

Numbers of species per month in 1972 were: January 1; March, 13; April, 21; May, 41; June, 72; July, 145; August, August, 108; September, 63; October, 37; November, 14.

The highest catch on any one night was 5,000+ on 22nd July 1972.

## Joint Committee for the Conservation of British Insects

### RARE AND ENDANGERED SPECIES—GENERAL LIST

Recently, lists of Macrolepidoptera, and of Odonata and Orthoptera, which this Committee considers are at risk in Britain have been published. The Committee has now compiled a short list of other British insects which it also considers should be collected with restraint. Because such insects are not subject to the same pressures from collecting it has not been necessary to compile a long list despite their much greater numbers. Moreover the criteria adopted in selecting species for inclusion on the list have not been exactly the same as those which are appropriate for the more popular groups. Only species which are either particularly conspicuous or easily collected, or which are known to occur in only one restricted locality have been included. In some cases both these criteria apply.

The committee is aware that it may be criticised for suggesting that species outside the popular groups may be vulnerable to over-collecting. It appreciates that in many cases the knowledge does not exist which would enable a fully informed decision to be taken on such matters. On the other hand the Committee believes, first, that a policy of restraint in collecting very restricted species is necessary because they are especially vulnerable to threats of other kinds. Secondly, it believes that each case should be judged on its merits, as far as this is possible. Thirdly, it is anxious to avoid any impression that the collectors of the more popular groups, particularly Lepidopterists, are alone being singled out for implied criticism. The 'general list' has been kept short, partly because of a lack of up-to-date information and partly for the reason stated above, but more particularly because the Committee believes that long lists are self-defeating.

The Committee urges all entomologists to follow the advice given in the 'Code for Insect Collecting' and to exercise restraint in collecting the following species:

**Hemiptera-Heteroptera***Geotomus punctulatus* (Costa) (Pentatomidae)*Gonocerus acuteangulatus* (Goeze) (Coreidae)**Hemiptera-Homoptera***Cicadetta montana* (Scopoli) (Cicadidae) (New Forest Cicada)**Lepidoptera ("Microlepidoptera")***Hypercallia citrinalis* (Scopoli) (Oecophoridae)*Nothris verbascella* (Hübner) (Gelechiidae)*Aethes rutilana* (Hübner) (Cochylidae)*Agrotera nemoralis* (Scopoli) (Pyrilidae)*Cnaemidophorus rhododactyla* (Denis & Schiff.) (Pterophoridae)*Stenoptilia pneumonanthes* (Büttner) (Pterophoridae)**Coleoptera***Omophron limbatum* F. (Carabidae)*Chrysolina cerealis* (L.) (Chrysomelidae)**A Possibly Abnormal Sex-ratio in *Zygaena carniolica* Scopoli (Lep.: Zygaenidae)**

By TORBEN B. LARSEN

(P.O. Box 1567, Beirut, Lebanon)

**Introduction**

In August and September 1973, I paid repeated visits to the area of Jabal Kesrouan on the Lebanon Mountain range with a view to collecting large-scale quantitative information on *Zygaena carniolica* Scopoli. The phytogeographical characteristics of the area, on the lower fringes of the Subalpine Zone, have been summarised elsewhere (Larsen, 1974, Pabot, 1959). The quantitative results will be published later, but as information on the sex-ratio was not part of the over-all investigation these results will be noted here. They turned out to be so interesting that special attention will be focused on this aspect if the author remains in Lebanon.

**Material**

The whole of the Jabal Kesrouan above 1700 m. is dotted with almost discrete colonies of the butterfly; each colony has thousands and thousands of individuals, while intervening ground only displays very occasional specimens. On 19.8.1973 215 specimens were caught in a random sample of one such colony, 97 of which were in perfect condition and were kept. On the same day 456 pupae were collected, of which 170 successfully hatched and developed. Most of the rest were parasitized.

The investigation was made in the later part of the season for the butterfly. The very first few pupae had been found in

late June, and by late July the species was super-abundant in the colony\*. By September only occasional fresh specimens could be found. The prime season appears to be 20th July to 30th August or so. This is long, but the length is not surprising as the species hibernates in the first larval instar and development must be heavily influenced by local microclimatic conditions. Accordingly there is no reason to suspect that the two samples should deviate from the theoretical sex-ratio of 100 males to 100 females.

### Sex-ratios of Two Samples

The table below gives the sex-ratios of the two subsamples and the total samples, as well as the deviation from the expected norm when measured against the theoretical ratio using the binominal approximation to the normal distribution (see statistical appendix).

Table 1

Sex-proportion of two samples of *Zygaena carniolica* and the combined sample, with value of the u-test in relation to the expected proportion of 0.500

Sample	N	per cent male	per cent female	value of u
97 freshly hatched specimens	97	71	29	4.6
170 specimens bred from pupae	170	67	33	4.7
Combined sample	267	68	32	6.8

The values of u are all significant at the 0.00001 level, and only the fact that samples from other times of the season are not available leaves the conclusion somewhat tentative. However, as the samples were certainly drawn in the later part of the main season, one would, if anything, have expected a slight preponderance of females.

### Discussion

Abnormal sex-ratios in insects are highly unusual. A summary article (HAMILTON 1967) lists 26 species, all with a strong preponderance of females. The only butterfly with an abnormal sex-ratio which has been extensively studied is *Acraea encedon* where predominantly female populations are found (OWEN 1971). A number of moths have regular or irregular parthenogenetic broods (IMMS 1923, LEMAIRE 1969, SEVASTOPULO 1972). No records exist of predominantly male populations of insects.

The evidence presented is strongly suggestive that the sex-ratio in *Zygaena carniolica* on the Jabal Kesrouan is 200 males

\*About 150,000 on an area of 4,000 m<sup>2</sup>



to 100 females. I very much hope to prove this suggestion through a longitudinal study throughout the period of flight of the species, but would appreciate additional information on other populations of *Zygaena*. It should be noted that huge, discrete populations, such as the one studied, may be among the most conducive to genetic abnormality. The possibility that a population-limiting factor is activated by density must be entertained.

### Statistical Appendix

When the expected frequency of males to females is 0.50, we are faced with a binomial situation, which in view of the high number and high  $\emptyset$  may be transformed to a normal distribution. The significance test thus becomes:

$$\sqrt{\frac{h - 0.50}{\frac{h(1-h)}{N}}}$$

where  $h$  signifies the observed frequency, 0.50 the theoretical  $\emptyset$  frequency and  $N$  the sample size (HALD 1952).

### References

- Hald, A. (1952). *Statistical theory with engineering applications*. Japan.  
 Hamilton, W. D. (1967). Extraordinary sex-ratios. *Science*, **156**: 477-88.  
 Imms, A. D. (1923). *A general text-book of Entomology*. London.  
 Larsen, T. B. (1974). *The Butterflies of Lebanon*. Beirut. E. W. Classey  
 250 pp. i11.  
 Lemaire, C. (1969). Un cas de parthénogénèse chez les Lepidoptères  
*Attacidae: Goodia kuntzei* (Dewitz).—*Alexanor* vi: 47/48.  
 Owen, D. F. (1971). *Tropical Butterflies*. Clarendon Press, Oxford, U.K.  
 Pabot, H. (1959). Rapport au Gouvernement du Liban sur la Vegetation  
 Sylvopastorale et son Ecologie. FAO Technical Assistance Pro-  
 gramme Report, No. 1126 (PA/59/8/6161). Rome (Mimeograph).  
 Sevastopulo, D. G. (1972). *Decachorda aspersa* Bouv. A second partheno-  
 genetic Saturniid.—*The Entomologist*, **105**: 135-36.

## Notes and Observations

MYTHIMNA (ALETIA) L-ALBUM (L.) (L-ALBUM WAINSCOT) IN  
 ESSEX.—In view of Dr Watkinson's note on this species (in  
*Ent. Rec.*, **85**: 268) it is perhaps worth mentioning the occur-  
 rence here of a ♀ and ♂ of *M. l-album* at m.v. light on 6th  
 October 1972 and 8th October 1972 respectively. Although  
 eggs were obtained they appear to have been infertile.—A. J.  
 DEWICK, Curry Farm, Bradwell-on-Sea, Southminster, Essex.  
 [Is this the first record of *l-album* for Essex, also its furthest  
 north appearance in Britain?—Edit.]

AN UNUSUAL FOODPLANT FOR *PHYLLONORYCTER MESSANIELLA* (ZELLER).—In October 1972 I discovered in my garden, on the leaves of a young tree of *Tilia tomentosa*, a number of small, rather square underside mines, apparently made by a species of *Phyllonorycter*. Hering (*Bestimmungstabellen der Blattminen von Europa*, 1957) stated that mines had been found on *Tilia* in various parts of Europe including Great Britain, but that no moths had been bred from them.

I accordingly collected some 50 mines, and during the winter kept half in a plastic box in a cold room, and half in a flower-pot outside. When nothing had emerged from either batch the following spring, I examined the contents of the box and found a dead and very mouldy moth which looked as though it had emerged the previous autumn, and which I sent for determination to Mr E. C. Pelham-Clinton. On a second specimen, which had died in pupa when ready to emerge, I operated myself. Both proved to be *Phyllonorycter messaniella* (Zeller), which is abundant in the neighbourhood on *Quercus ilex* and also occurs regularly, though less commonly, on *Carpinus*.

It seems likely that *P. messaniella* occasionally affects some Limes, but that it is not able to flourish upon them; this would account for the species not previously having been bred. It is also possible that smooth-leaved Limes are not acceptable; *T. europea* and *T. platyphyllos* in my garden and elsewhere in this district appear unaffected, and mines on *T. cordata* would probably have been found by Lepidopterists looking for other species. Mines and moths were both under-sized, but the same tree was again well patronized in the Autumn of 1973.—D. W. H. FFENNELL, Martyr Worthy Place, Winchester.

CONISTRA RUBIGINEA D. & S. (DOTTED CHESTNUT) IN NORTH-SURREY.—I wish to record that on the night of 6th April 1974 at Ashted Common, Mr Brian Chesney and I ran two Heath traps and one m.v. lamp and took a fair cross section of the species associated with Ashted at this time of year. The weather was clear and fair with a full moon and at times a gusty wind, and among the moths noted were *Orthosia munda* D. & S. (Twin-spotted Quaker), *Cerastis rubricosa* D. & S., *Selenia tetralunaria* Hufn. (Purple Thorn), *Biston strataria* Hufn., (Oak Beauty) and *Trichopteryx carpinata* Borkh. (Early Tooth-striped).

About midnight after switching off, we began to collect up our equipment, when to our great delight, a slightly worn specimen of *Conistra rubiginea* D. & S. (Dotted Chestnut) ♂ was spotted in the grass alongside the Tilley lamp. This is only the third specimen to be found in the North-East Surrey area, the others having been taken at West Humble (1948) and at Tadworth (1951) (cf. L. K. Evans and K. G. W. Evans, *A Survey of the Macro-Lepidoptera of Croydon and North-East Surrey*,

377). The only other place where I have personally taken this species was at Chobham Common, Surrey.—PETER A. MARTIN, 22 Wingate Crescent, Croydon, CRO 3AL. 14.iv.1974.

*ALCIS JUBATA* (THUNBERG) IN IRELAND. — In the period from July 13 till July 28, 1972, Mr Th. Blokland, one of the members of the Netherlands entomological Society, made a holiday trip with his family in a covered waggon in the south-west corner of Ireland. Although the circumstances were not very favourable for collecting, he succeeded in catching a series of Lepidoptera and afterwards sent me a list of the species taken. To my surprise *Alcis jubata* was among them. It is a very rare species in the Netherlands at present or possibly even extinct.

Donovan does not mention it in the Catalogue of 1936, nor in the supplement of the same year. But Baynes in his Revised Catalogue (1964) cites a specimen taken at Killarney, Co. Kerry, in 1941.

Mr Blokland took two males and one female at Leap, between Clonakilty and Skibbereen, Co. Cork, on July 21, 1972. A very interesting addition to the distribution of the species in Ireland indeed! — B. J. LEMPKE, Oude Yselstraat 12 III, Amsterdam 1010.

*CAPYS ALPHAEUS* (CRAMER) (LEP.: LYCAENIDAE) EMERGING FROM A PROTEA-HEAD IN GERMANY. — As at many times in the past, my mother-in-law ordered a wonderful bunch of South African Proteas to be sent to us shortly before Christmas; my wife arranged half of the bunch in the bedroom and the other half in the living room. One evening, late in January with heaps of snow outside the window, I walked past the flowers in the bedroom and noticed a butterfly taking off from one of the almost dried out Protea-heads. It landed on the brown carpet and we caught it with a kitchen sieve. I noticed that it was not a local butterfly which could occasionally hibernate in warmer places. In contrast, it was clean, the colours were bright and its wings were not damaged. Because of the obvious connection between the flowers and the butterfly our interest was aroused and we tried to identify it from Purnell's pocket-book (Southern African Series) "What butterfly is that?", which we happened to have at home, since the author is my wife's uncle. We recognized it from one of the coloured plates as the male of *Capys alphaeus* and the life story given in the book fully explained this extraordinary occurrence.

Since we did not like the idea of its disappearing into the vacuum cleaner one day, we kept the butterfly in a large glass, where it died about a fortnight later. The specimen has been sent to Mr C. G. C. Dickson, of Cape Town, South Africa. — EDUARD HOFER, 8058 Erding, Dr.-Lehmer-Str. 36, Germany.



A FURTHER RECORD OF INFURCITINEA ARGENTIMACULELLA STAINTON IN KENT.—Whilst in the East Blean Woods area of Kent on the 30th July 1972 I took a small Tineid moth flying in the sunshine. I did not look at it very closely at the time and on returning home was surprised when a closer inspection revealed it to be this species.

As far as I am aware East Blean is one of only two localities in Kent where the moth is found, the other being at Folkestone. The lichen on which the larvae feeds occurs in the East Blean area but no feeding site has yet been discovered.—E. S. BRADFORD, 38 Oakwood Avenue, Boreham Wood, Herts. 22.iii.1974.

AGROTERA NEMORALIS SCOP. IN KENT. — On the 18th June 1973 I took a specimen of this moth amongst Hornbeam in the East Blean area of Kent. Another specimen was seen, but escaped when the net entangled in some branches while I was attempting to capture it. Both were observed to settle on the underside of a leaf, adopting the same posture as does *Endotricha flammealis* D. & S., and the first was taken in a tube, being just within reach.

One of the objects of a B.E. & N.H.S. field meeting to the West Blean Woods on the 9th May 1971 was to see if this species still existed there, but a blank was drawn though a large area was searched. The moth does, in all probability still occur in the West Blean Woods.—E. S. BRADFORD, 38 Oakwood Avenue, Boreham Wood, Herts. 22.iii.1974.

HIBERNATING LARVAE.—On 20th March 1974 I visited Bratton Castle on the northern edge of Salisbury Plain and at this time of year I amuse myself by counting the number of Drinker Moth larvae I can spot at rest on grass stems at the sides of the paths. Up to this year my record had been 12 on any one day but on this occasion my total reached 69. They seemed to be everywhere and ranged in size from an inch in length to three parts grown.

In my garden I have a number of Ringlet larvae hibernating in the open on pots of grass and they too have come through the winter with very few casualties. I have in the past overwintered grass feeders on many occasions but have always been plagued by mould which has attacked both the larvae and the grass. This past winter has been exceptionally mild and, although I have taken no special precautions, I have seen no sign of mould. I am wondering if there is any connection between this and the satisfactory overwintering of the two species I have described. The Marsh Fritillary too has had a good winter and I have already seen many nests of larvae that have come up to sun themselves. — MAJOR-GENERAL C. G. LIPSCOMB, Crockerton House, Nr. Warminster, Wilts. 24.iii.1974.



O.M.H.

The auto-obituary of the late P. B. M. Allan appears here-  
under having just come to light from beneath a collection of  
dry *leaves* eminently suitable for pupation.

BENEATH THIS TREE LIE

THE EXUVIAE

OF

AN OLD MOTH-HUNTER

WHO WENT TO EARTH

The 31st Day of December 1973.

From earthly *cage* by *Atropos* set free  
His hope is *pinned* to Immortality;  
*Mors pallida* Hor. caught him in her *net* :  
The *bush* no more he'll *beat*; for here he's *set*.  
His nights with *sugar*, *lamp*, and *sheet* all past,  
Now, *box'd securely*, lies *relaxed* at last.

READER!

DIG NOT HERE

BUT PONDER ON THE

METAMORPHOSIS

THAT AWAITS YOU

# Obituary

**FRANK HENRY LEES (1883-1973)**

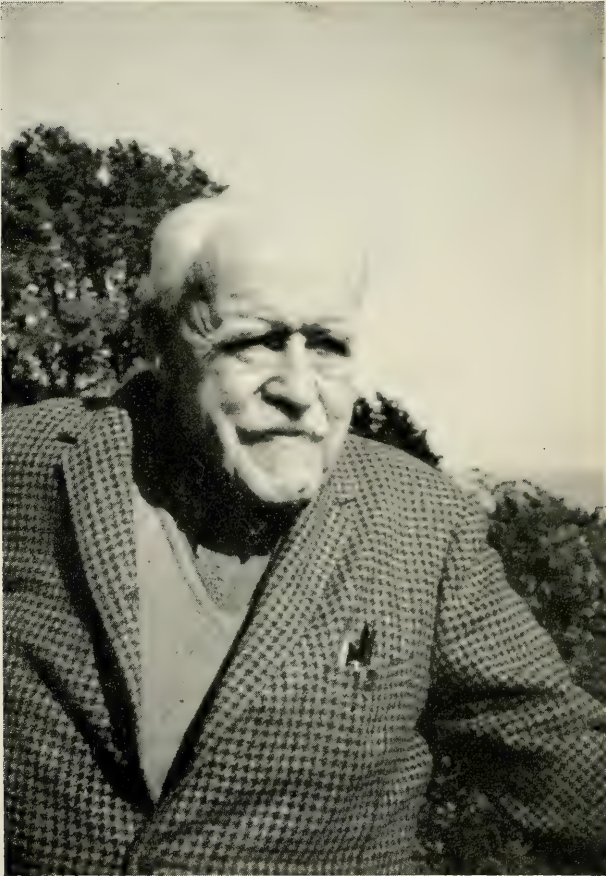
On November 18, 1973, there passed away at Torquay one  
of the most successful and fortunate collectors of our mac-  
rolepidoptera. For during his long and rewarding life of 90  
years Frank Lees not only made a most erudite study of this  
group of insects, but had himself taken probably more rarities  
than anyone else has ever done, especially among the moths.

Born on May 16, 1883 in Birmingham, he spent his first 55 years in that famous cradle of field collectors and was a contemporary of such eminent sons of that city as the late Professor Sir Beckwith Whitehouse and Colonel W. Bowater who also died recently at the age of 90. In company with these and other well-known entomologists of that region he built up over the years an exceedingly fine collection of the lepidoptera of the Birmingham area as well as from other parts of the British Isles.

It was while at King Edward's Grammar School that Frank Lees was first instructed in the pursuit and study of butterflies and moths by his uncle, Richard Wakefield. His nephew found it a relaxing pastime in later years especially those just before and after the 1914-18 war when he was running his own brass foundry firm and became a Government contractor for a special lamp he invented. Just before he retired from his business in 1935 he was lucky enough to accompany Sir Beckwith Whitehouse to Dungeness during that fabulous late summer of 1934. He records how on September 18 that year he spotted part of a moth protruding from a hole in one of the upright sleeper posts and from its hindwings he at once realised it was the Alchemyst (*Catephia alchymista* Schiff.) of which another specimen was taken near Deal the previous August. Only two days previously he had taken at sugar one of five examples of the Scarce Arches (*Apamea zollikoferi* Freyer) in this wonderful locality which also produced for him a Red-headed Chestnut (*Conistra erythrocephala* Schiff.) on September 29, yet another great rarity. Almost exactly a year later he was present with Sir Beckwith this time in the Ham Street woods when a Conformist moth (*Lithophane furcifera* Hufn.) came to the sugar patch, altogether surely an unsurpassed sequence of rare captures.

In the year of his retirement in 1935 Frank Lees moved to Maidencombe just east of Torquay which was to be his permanent home for the next 37 years. His house was set fairly high on a cliff overlooking a small bay and it was indeed in a most strategic position for attracting rare migrant insects. During the 1939-45 war two such species which came to his light were the Golden Twin-spot (*Plusia chalcites* Esp.) and the Slender Burnished Brass (*Plusia orichalcea* Fab.). He was also fortunate there during the great invasion of the Striped Hawk (*Celerio livornica* Esp.) which was prevalent in southern England during the early summer of 1943. In 1947 he took a female Ni moth (*Plusia ni* Hübn.) from which he bred out a superb series. Hardly a year passed without his obtaining some species of special interest, especially when he started running a mercury vapour trap. In that remarkable early immigration in the spring of 1952 the first British example of the Levant Blackneck (*Tathorynchus exsiccata* Led.) came to his light on March 20, while six years later on October 1, 1958, he took the second British specimen of Stephen's Gem (*Plusia biloba* Stephens) a species emanating from North America,

PLATE XII



**FRANK HENRY LEES**





Frank Lees became a great lover of Devon and its lepidoptera and was a founder member of the entomological section of the Devon Association. He was a regular attender at its meetings which he infused with his great knowledge and enthusiasm. But an increasing leg disability in the early 1960's made it more and more difficult for him to go far afield from his home so that he devoted most of his time mainly to keeping records of his captures, though he seldom contributed them to the literature. In 1967, the Devon Association acquired his fine collection which is now fittingly housed in a part of Exeter University, while his Kent rarities of the 1930's have gone to Reading University.

Though perhaps not so well-known to the majority of entomologists, he had a great many friends equally imbued with the enthusiasm of the chase, whom he was always delighted to welcome whenever they were in South Devon where he was the most kindly of hosts. He was of the most genial disposition, always ready to give help and information on his favourite subject through his fund of knowledge of the lepidoptera. He will indeed be sorely missed by all who knew him and to his son and family is tendered full expression of sympathy.

C.G.M.de.W.

## Current Literature

**Studying Insects: a Practical Guide** by R. L. E. Ford. 16 coloured and other plates, 47 line drawings. Warne, 1973. £2.50.

This, the revised edition of the author's *Practical Entomology* deals with conserving living insects as well as providing an introduction to insect study and collecting. Included are chapters on conservation; insect classification and insect structure; catching insects and their treatment for collections; breeding specimens and their care in all stages; preserving larvae; labelling and preservation of collections. Although mainly concerned with Lepidoptera, other groups are considered and there are chapters on ants, humble-bees and wasps. Appendices include the "Code for Insect Collecting", foodplants and times of appearances of British butterflies, and a short list of books, notes on societies, magazines (from which we regret to note that he omits the "Record" yet includes two periodicals now defunct) and suppliers.—J.M.C.H.

**A Field Guide to the Insects of Britain and Northern Europe** by Michael Chinnery. 4 to. 352 pp. plus 60 coloured plates: Collins, £2.95.

For some time now, attempts have been made to produce an insect handbook to enable the interested traveller to identify insects seen on his holiday. So far such books in the English language have been translations from other languages. The present book, as well as being written in the

English language (translation, however well done, is apt to lose something of the original intention) covers the subject more widely; with the exception of the larger orders of Lepidoptera, Diptera and Coleoptera (where identification is to super family level) one's finds may be identified to generic level.

The book commences with a list of contents followed by a list of coloured plates. The names of the artists, **Denys Ovensden**, **Brian Hargreaves** and **Gordon Riley**, are given in a footnote, mentioning the numbers of the plates executed by each. Acknowledgements follow, after which there is a short page giving instructions for using the book, and then a comprehensive Introduction, giving notes on the biology of insects, collecting and preserving them, illustrated with line drawings.

The cover-papers, back and front, carry coloured illustrations of insects typical of various genera or super families, with a reference to the plate on which they are illustrated, or, in the case of the minute insects, the page on which they are dealt with, thus giving a first step towards determination. The caption page for the plate gives a page reference, and the information given there may narrow the identification to the genus, if not to the species, some of which are mentioned.

After the notes on collecting and preserving insects, there is a note on the classification of insects, explaining the system of orders given by Imms in 1957, which is the system adopted in this book, and also pointing out the existence of "lumpers" and "splitters". This is followed by a note on The Key, explaining its use, and then there is a key to the orders with very clear line drawings of the example of the particular order reached at the appropriate clues. These drawings make clear the dissimilarities between groups of the same order, and the key is one which can easily be followed by the most inexperienced reader after reading the previous page explaining its use.

The four orders of Apterygote insects are then dealt with with clear line drawings of typical species. The notes on the orders bring these primitive insects well into perspective, with dorsal and lateral illustrations of the four major groups of springtails.

The Pterygote insects are then dealt with in the same way with keys to the genera in which the distinguishing features are very clearly illustrated, the excellent coloured plates showing typical species for each genus, with the exceptions previously mentioned, where superfamilies take the place of genera. As mentioned in the Acknowledgements, some of the keys have been borrowed from the Royal Entomological Society *Handbooks for the Identification of British Insects*, and from the Frederick Warne publication *Land and Water Bugs of the British Isles* by Southwood and Leston.

After the orders, there are four plates illustrating the diverse forms of larvae of Lepidoptera followed by a Glossary of scientific terms used, a selected bibliography classified

under the orders, a list of entomological suppliers, and finally, an index.

A very important attraction is the fact that while the author assumes the absolute ignorance of the reader, he does not talk down to him, but treats his subject in a manner completely understandable to beginner and entomologist alike, with no wasted words. To the inexperienced, this book is an excellent start, to the more experienced, it is valuable for reference to orders which are not included in his particular studies.

The book is well printed on good paper and well bound in cloth boards; the quality of the plates reflects great credit on both artists and the colour-printers. It should find a place on the bookshelves of every family with an interest in nature, no matter how trivial this may be, for the book will soon encourage closer study of the subject. It also has a place on the shelves of the entomologist for quick reference. It gives excellent value for the moderate price and could not be bettered as a gift to teenagers upwards.—S.N.A.J.

**The Evolution of Melanism** by **Bernard Kettlewell**: xv+423+39 pl. (3 col.): Claredon Press; Oxford University Press. £10.25.

The sub-title of this book is: "The Study of a recurring Necessity with special reference to Industrial Melanism in the Lepidoptera" and this well indicates the sphere of this subject covered in this book. Dr Kettlewell, in his many years of studying this piece of evolution which has been taking place before our eyes, has written many papers on melanism, and it will be a great help to students and to others interested, to have much of this material gathered under one cover together with some hitherto unpublished aspects of the matter.

In his preface, Dr Kettlewell points out that during his work on melanism in the Lepidoptera, he has been dealing with a subject which contributes to the survival of living creatures in general, and he has dealt with this phenomenon as applied to other orders in Chapter 3, where he mentions cases of melanism in practically all spheres of animal life under the headings of Cryptic Melanism, Aposematic Melanism, Thermal Melanism and Barrier Melanism. Under these headings, examples of many interesting phenomena are given.

Quoting from this preface he says: "In every instance I describe, I am anticipating that the reader has some knowledge of biology (though not an intimate one of the Lepidoptera), genetisc (though I shall discuss the attributes of polymorphism) and a minimal experience of methods of statistical analysis as well as of presenting scientific aids and approaches. Without knowledge of such techniques, it is useless to attempt to analyse the many different uses of melanism in nature". This seems to me to confine the book to the student, for whom it was, of course, intended, but the inclusion of a glossary of the scientific terms used in genetics would



have widened the book's appeal to many lepidopterists in addition. Many years ago I asked Dr Cockayne whether he could not produce a "Gentics without Tears", but he replied that this was an impossibility, so perhaps my wish for a glossary is not, after all, relevant.

The very long list of acknowledgements gives an idea of the interest taken round the world by both professionals and amateurs in Dr Kettlewell's studies, and this is endorsed by the alacrity with which permission has been given for the reproduction in part, or as a whole, of material previously published. The history of the Rothschild-Cockayne-Kettlewell collection, now in the British Museum (Natural History), is set out.

The text is divided into seven parts: I, The Concept of Melanism; II, Melanism in the Lepidoptera; III, *Biston* (Syn. *Amphidasis* *Pachys*) *betularia* (Selidosemidae)—The Original Selection Experiments (1952-8) — The Frequency Surveys (1952-70); IV, Non-industrial Melanism; V, The Origins of Melanism; VI, Miscellaneous Melanisms; and VIII, The Synthesis. These parts are divided into 19 chapters, each subdivided so as to make reference to any particular matter as easy as possible.

The text is followed by three appendices, (A) Breeding Techniques, illustrated by three plates of complete broods from stated pairings and one illustrating the mechanism of dominance in industrial melanism in the Lepidoptera. (B) Melanism in the British Heterocera, which gives a long list of species in which melanic examples exist in the R. C. K. collection with comments, (C) Phenotype-frequencies of *Biston betularia* and its two melanics f. *carbonaria* and f. *insularia* from centres in Britain 1952-70. This material is tabulated by counties.

There follows a list of recorders, then the Hardy-Weinberg table of gene and phenotype frequencies after which there is a bibliography with about 600 titles. Three indices deal with Authors and Contributors, a subject index, and a species index of Lepidoptera.

The plates illustrating the text include three in colour from photographs by John Hayward, Robin Tanner and Simon Whalley, and are of excellent quality. The remainder are half tone plates from photographs and are also of excellent quality. The contents list contains an erratum slip calling attention to the misplacing of one set of plates owing to an error in binding, but this is a small matter and should not give rise to any misapprehensions.

The printing is excellent and the paper of good quality; the book is well bound in the customary dark blue cloth boards, and is protected by a strong paper jacket.

The book is one which should be welcomed by all students of genetics, and will also interest lepidopterists as a whole. It should also find place in all public libraries with a scientific section.—S.N.A.J.





## **Exotic Entomological Specimens**

**LEPIDOPTERA — COLEOPTERA — MISCELLANEOUS  
INSECTS OF THE FINEST QUALITY WITH DATA**

20 page Illustrated Catalogue, 20p

**LIVESTOCK** — please send 15p for current catalogue of Ova,  
Larvae, Pupae, Cocoons, etc.

**R. N. BAXTER**

**16 BECTIVE ROAD, FOREST GATE, LONDON, E7 0DP.  
ENGLAND**

**FOR A PERSONAL AND INTERESTED SERVICE**

In your replies please mention "The Entomologist's Record"

## **ENTOMOLOGICAL CABINETS**

**Ten Drawer Unit Insect Sections**

---

*Sole manufacturers of the "Hill" Interchangeable  
Unit System formerly produced by J. J. Hill & Son Ltd.*

---

**R. Cattle, Limited**

*Precision Woodworkers*

P.O. BOX NO. 1

**Oxford Road, Gerrards Cross, Bucks.**

**Tel. Gerrards Cross 87131 (4 lines)**



# IMAGO BUTTERFLIES

LEPIDOPTERA SUPPLY & RESEARCH SPECIALISTS

Suppliers of Livestock — Exotic and European  
Over forty species listed

Plus prospective list of species we hope to supply in the near future  
General Catalogue available on receipt of 30p (Overseas \$1)

This includes subscription to our annual mailing lists

---

62 HIGH STREET, CROYDON, SURREY, ENGLAND

Please mention the Entomologist's Record

---

## FOR THE ENTOMOLOGIST

Apparatus, Books, Cabinets and Set Specimens

Price lists of the above are issued from time to time so if you  
would like to receive regular issues please send me a postcard  
stating your interests

---

### L. CHRISTIE

137 Gleneldon Road, Streatham, London, S.W.16, 2BQ, England

(Postal business only)

*Official agent for publications of the Amateur Entomologist's  
Society*

---

### the BUTTERFLY FARM LTD. (Founded 1894)

Bilsington, Ashford, Kent England TN25 7JW. Tel. Ham St. 2513

---

As the oldest farm in the world we are justly proud of our reputation  
as suppliers of the finest entomological materials.

For livestock and preserved specimens from all over the world; books  
new or old; breeding, storage and collecting equipment; educational dis-  
plays, please write for lists and details of our Mailing Index.

We urgently need suppliers of surplus collections, books and  
cabinets, and also reliable suppliers of livestock.

Visitors especially welcome to look around *the* Butterfly Farm, please  
phone in advance. See our living and museum displays and our British  
Wildlife Sanctuary—to which a small charge will go.

---

---

## THE AMATEUR ENTOMOLOGISTS' SOCIETY

---

The Society was founded in 1935 to cater especially for the younger or less experienced Entomologist.

For full details of publications and activities, please write (enclosing 3p stamp to cover postage) to:—**R. D. HILLIARD**, Hon. Advertising Secretary, A.E.S., 18 Golf Close, Stanmore, Middlesex.

---

---

## BRITISH NATURALISTS' ASSOCIATION



has twenty active branches in Britain and a world-wide membership. Its official organ, *Country-Side* (published three times a year), is the oldest-established British magazine devoted to general natural history

Membership subscription 75p per annum

*Full details and application form obtainable from:*

**B.N.A., 'Willowfield', Boyneswood Road, Four Marks, Alton, Hants**

---

---

## THE NATURALIST (founded 1875)

*A Quarterly Illustrated Journal of Natural History*

---

**Edited by W. A. SLEDGE, Ph.D., B.Sc.**

Annual subscription: £2.00 (post free)

Single numbers 50p

---

*Separates of the collected instalments of the:—*

### **LEPIDOPTERA OF YORKSHIRE (Macrolepidoptera)**

which appeared serially in *The Naturalist* (1967-1970) are also available on application. Price 50p, plus 4p postage

**The Editor of the Naturalist,**

Department of Botany, The University, Leeds, LS2, 9JT

---



# Butterflies and Moths

Recent and forthcoming  
Books from

**E. W. CLASSEY LTD.**

Park Road, Faringdon, Oxon  
SN7 7DR

---

**NOTE:** All prices quoted include postage by ordinary mail.  
**TERMS:** Cash with order or settlement on receipt of goods.

---

## **THE BUTTERFLIES OF THE MALTESE ISLANDS**

By A. VALETTA

1972. 64 pages. 17 plates. Paperback.

*Price £0.35*

## **THE MOTHS OF THE MALTESE ISLANDS**

By A. VALETTA

1973. 118 pages. 16 plates. Paperback.

*Price £0.75*

For publication Summer/Autumn 1974

## **THE BUTTERFLIES AND MOTHS OF HAMPSHIRE AND THE ISLE OF WIGHT**

By BARRY GOATER

About 340 pages. Well bound and with an attractive coloured jacket. This very thorough and exhaustive Local List covers both the Macro and Microlepidoptera.

It is the result of many years of work—both in compilation of records and personal collecting and observation by one of our most celebrated field lepidopterists.

The fact that it deals with one of the best loved and attractive collecting counties, including, as it does, the New Forest and other famous localities, will make it one of the best selling works of its kind of all time.

*Price £6.50*

## **THE BUTTERFLIES OF THE LEBANON**

By T. B. LARSEN

About 270 pages. Illustrations to include both colour and black and white plates. Late summer.

*Approximate Price £6.50*

## **BUTTERFLIES OF WEST MALAYSIA AND SINGAPORE**

By W. A. FLEMING

2 volumes. Summer 1974. Brochure available. The 90 colour plates will contain about 1,580 figures—of every known butterfly from W. Malaysia and Singapore, including male and female where significantly different and undersides where diagnostically important.

Price for the two volumes (not sold separately) £19.50



---

## EXCHANGES AND WANTS

**For Sale.**—Separates of "Emmet's Notes on some of the British Nepticulidae". Price 35p per copy. Printed covers for the collection of 5 parts.—Apply to S. N. A. Jacobs, 54 Hayes Lane, Bromley BR2 9EE, Kent.

**Back numbers**—Our supplies of certain back numbers are now a little reduced and we would be willing to buy in a few copies of Vols.: 75, 77, 79, 82 and 83 at subscription rates. Due to an error there are now no further stocks of the January 1973 issue, we would therefore be indebted to anyone who could part with this issue.—S. N. A. Jacobs, 54 Hayes Lane, Bromley, Kent.

**The Maidstone Museum** have recently set up a Kent Biological Archives and Record Centre, which can now receive records based on the tetrad system (2 Km. sq.), for all insect orders. In particular, a scheme is being set up to record both Macro and Microlepidoptera from 1971 onwards. This is to run in parallel with the very successful plant scheme. The records will be available to any serious student of the Fauna or Flora of Kent. This ambitious scheme obviously must enlist the help of as many resident and visiting Lepidopterists as possible. For further information, please write to: S. E. Whitebread, 2 Twin Cottage, Grove Farm, Higham, Nr. Rochester, Kent, ME3 7NX. Records for other insect orders should be sent to Mr E. Philp at the Maidstone Museum, St Faith's Street, Maidstone, Kent.

**Offers wanted** for the bound volumes 9, 10 and 12 of the Entomologist Record. Replies to Colin Pratt, 5 View Road, Peacehaven, Newhaven, Sussex.

**Wanted.** — Samples of *Apamea monoglypha* (Dark Arches) from MV traps, to aid an investigation into the frequency of melanism in this species. We would like to obtain random samples, caught during the 1974 season, from any locality in the British Isles. If you think you might be able to help and would like further details please write to — J. Muggleton, Dept. of Zoology, University of Manchester, Manchester M13 9PL.

**Wanted.** — Second-hand Robinson M.V. moth trap in good working condition. Write stating price to — J. S. Lane, 16 Shawbrook Close, Euxton, Lancs. PR7 6JY.

---

## AURELIAN BOOKS

Antiquarian, Recent and New Books on Insects, Plants, Birds, Mammals and General Natural History bought and supplied

*Libraries purchased — Catalogues issued — Personal requirements searched for. Please advise us of your wants.*  
Write or telephone

**AURELIAN BOOKS, Tumbledown Dick's, Green Tye,  
Much Hadham, Hertfordshire.**

**Telephone: Much Hadham 2676**

**POSTAL BUSINESS ONLY**

---

---

# THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

(Founded by J. W. TUTT on 15th April 1890)

---

*The following gentlemen act as Honorary Consultants to the magazine:*

*Orthoptera: D. K. Mc. E. KEVAN, Ph.D., B.Sc., F.R.E.S., Coleoptera: A. A. ALLEN, B.Sc.; Diptera: E. C. M. d'ASSIS-FONSECA, F.R.E.S.*

---

## TO OUR CONTRIBUTORS

All material for the **TEXT** of the magazine must be sent to the **EDITOR** at St Teresa, 1 Hardcourts Close, West Wickham, Kent.

**ADVERTISEMENTS, EXCHANGES and WANTS** to: E. H. WILD, L. Inst. Biol., 112 Foxearth Road, Selsdon, Croydon, Surrey, CR2 8EF. Specimen copies supplied by Dr Ian Watkinson on payment of 40p or sterling equivalent which will be taken into account if the person in question becomes a full subscriber.

**Changes of address, also enquiries regarding Back Numbers, Volumes and Sets of Volumes, to:** S. N. A. JACOBS, 54 Hayes Lane, Bromley, BR2 9EE, Kent.

Subscriptions should be sent to the Treasurer, **P. J. RENSHAW**, 53 Links Road, West Wickham, Kent BR4 0QN, England.

**REPRINTS:** 25 copies, taken straight from the magazine are sent gratis to contributors of articles; these may contain extraneous matter. More formal reprints from re-set type may still be had at cost price, and orders for these should be given, at the latest, with the return to the Editor of the corrected proof.

**ILLUSTRATIONS** are inserted on condition that the **AUTHOR DEFRAYS THE COST**.

Contributors are requested not to send us Notes or Articles which they are sending to other magazines.

All reasonable care is taken of MSS, photographs, drawings, maps, etc., but the Editor and his staff cannot hold themselves responsible for any loss or damage.

---

## SPECIAL NOTICE

The Editor would be willing to consider the purchase of a limited number of certain back issues.

---

---

# SARUMAN

(incorporating the Butterfly Centre)

Business Reg. No. 1685058

V.A.T. Reg. No. 210 4043 36



Specialists in British and World Lepidoptera and Entomologica  
Equipment — Literature — Livestock — Photographs

58 HIGH STREET, TUNBRIDGE WELLS,  
KENT TN1 1XF ENGLAND

Telephone: Tunbridge Wells 31926

Hours: 9.30 a.m.—5.30 p.m. except Wednesdays and Sundays

---

Directors: Paul Smart, F.R.E.S., Gita Smart; Consultant: John Muirhead;  
Technical Staff: Trevor Scott, Chris Samson, F.R.E.S.

---

Main catalogue 'Butterflies Presented by Saruman'. 1000 plus  
species listed: equipment: books: etc., 40pp inc. colour plates  
85p plus 10p postage

Supplementary lists (10 issued per year): 40p per annum.

---

Wanted to Purchase — Collections, Cabinets, Entomological  
libraries, large or small; Livestock, etc.

---

In your replies please mention  
*'The Entomologist Record'*

---

# CONTENTS

<i>Ectoedemia (Dechthiria) erythrogenella</i> (de Joannis). A Species New to Britain. A. M. EMMET .....	129
The Butterflies of the Shimba Hills. D. G. SEVASTOPULO .....	131
Collecting Lepidoptera in Britain during 1973. C. G. M. de WORMS..	137
A Review of Indian Phytoseiid Mites with a Note on their Zoogeography. S. K. GUPTA .....	141
Local Rarities and New Derbyshire Records for 1973. F. HARRISON	144
Notes on some of the British Nepticulidae II. A. M. EMMET .....	147
A Species of the Boreal Genus <i>Cosmetopus</i> Becker (Dipt., Scatophagidae) New to the British isles, taken by the River Test in Hampshire. P. J. CHANDLER and A. E. STUBBS .....	154
<i>Andricus lignicolus</i> (Hartig) (Hym.: Cynipidae) in S.E. England: A Species New to Britain. M. M. HUTCHINSON .....	158
Notes on the Genus <i>Utetheisa</i> Hübner (Lep.: Arctiidae) in the Western Pacific with Larval Descriptions. G. S. and H. S. ROBINSON .....	160
M.V. Recordings, Hampton Wood, Warwickshire. A. F. J. GARDNER	163
Joint Committee for the Conservation of British Insects. Rare and Endangered species: General List .....	164
A Possibly Abnormal Sex-ratio in <i>Zygaena carniolica</i> Scopoli. T. B. LARSEN .....	165
Notes and Observations:	
<i>Mythimna l-album</i> (L.) in Essex. A. J. DEWICK .....	167
An Unusual Foodplant for <i>Phyllonorycter messaniella</i> (Zeller) D. W. H. FFENNELL .....	168
<i>Conistra rubiginea</i> D. & S. (Dotted Chestnut) in North Surrey. P. A. MARTIN .....	168
<i>Alcis jubata</i> (Thunberg) in Ireland. B. J. LEMPKE	169
<i>Capys alphaeus</i> (Cramer) (Lep.: Lycaenidae) emerging from a Protea-head in Germany. E. HOFER .....	169
A Further Record of <i>Infurcitinea argentimaculella</i> Stainton in Kent. E. S. BRADFORD .....	170
<i>Agrotera nemoralis</i> Scop. in Kent. E. S. BRADFORD .....	170
Hibernating Larvae. Major-General C. G. LIPSCOMB .....	170
Obituaries:	
An Old Moth-hunter .....	171
Frank Henry Lees .....	171
Current Literature .....	173



217

# THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

*Edited by J. M. CHALMERS-HUNT, F.R.E.S.*

*with the assistance of*

A. A. ALLEN, B.SC., A.R.C.S.

C. A. COLLINGWOOD, B.SC., F.R.E.S.

NEVILLE BIRKETT, M.A., M.B.

H. C. HUGGINS, F.R.E.S.

S. N. A. JACOBS, F.R.E.S. (Registrar) S. WAKELY

Lieut. Col. A. M. EMMET, M.B.E., T.D., F.R.E.S.

H. B. D. KETTLEWELL, M.A. M.B., B.CHIR., F.R.C.S., L.R.C.P., F.R.E.S.



ANNUAL SUBSCRIPTION FOR THIS VOLUME No. 86

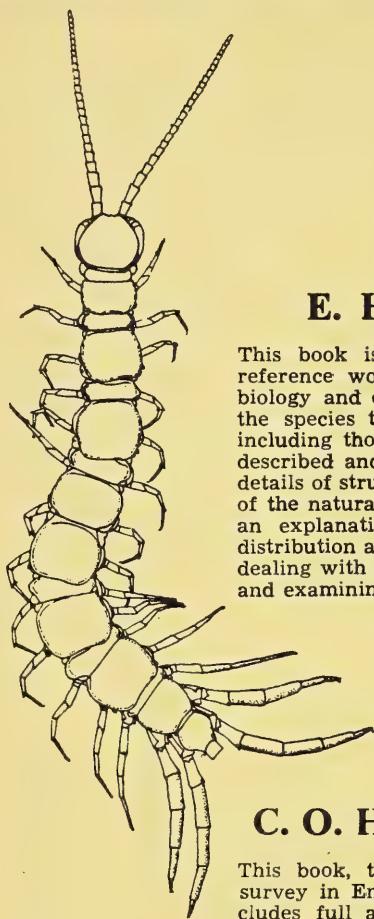
£4.00 Post free, for payment in sterling.

£4.25 if payment is made in Foreign Currency.

Is now due and should be paid to

*Hon. Treasurer:*

P. J. RENSHAW, 53 Links Road, West Wickham, Kent, BR4 0QN



# Centipedes of the British Isles

**E. H. Eason     £3.15 net**

This book is the only fully comprehensive reference work to deal exclusively with the biology and ecology of British centipedes. All the species to be found in the British Isles, including those doubtfully recorded, are fully described and illustrated. The book also gives details of structure and life history, an account of the natural history of the group as a whole, an explanation of the principles governing distribution and classification, and an appendix dealing with methods of collecting, preserving and examining specimens. ISBN 0 7232 0026 2

# Flies of the British Isles

**C. N. Colyer and  
C. O. Hammond     £2.75 net**

This book, the only modern comprehensive survey in English of the British Diptera, includes full accounts of structure and of the more interesting life histories and habits. More than 250 representative species are illustrated in 53 plates, many in colour, and numerous text figures drawn from specimens collected by the authors. There is a section each on the Nematocera, the Brachycera, the Cyclorrhapha Aschiza, the Acalypterates, the Calypterates, and the Pupipara. In addition a long introductory section provides a detailed analysis of the structure of the fly. The book contains a glossary, a bibliography, and is fully indexed.

ISBN 0 7232 0004 1

**FREDERICK WARNE & CO LTD**

**40 Bedford Square London WC1B 3HE**





*Phasis thero cedarbergae* subsp. nov.  
 Fig. 1. ♂ Holotype (upperside).  
 Fig. 2. ♂ Holotype (underside).



Fig. 3. ♀ Allotype (upperside).  
 Fig. 4. ♀ Allotype (underside).  
 Figures 1-34 times natural size.



# A Recently Discovered Race of the Cape *Lycaenid Phasis thero* (L.)\*

By C. G. C. DICKSON and C. W. WYKEHAM

No. 31

This new member of the *Phasis thero* (L.) group, while certainly resembling basically nominate *thero*, can be distinguished immediately from the nominate race or any of the other described members of the group by means of several distinctive features which are readily apparent.

*Phasis thero cedarbergae* subsp. nov.

Both sexes differ from nominate *Ph. thero* in the relatively shorter and deeper forewings, the more darkly marked underside (at least that of the forewing) and in certain features which are noticeable in the silvery-white markings of the hindwing underside, the series which occurs discally forming a particularly sharply and neatly defined broken chain of thin lunular markings.

*Male. Upperside.*

*Forewing.* Orange-red marking much as in nominate race (in the holotype, normally developed); if noticeably reduced, there is a fairly proportionate reduction in the size of the markings—not, generally, a complete disappearance of some, with others remaining prominent.

*Hindwing.* Much the same as that of nominate race, in examples with the marking largely absent: no male specimens of *cedarbergae* which have been seen as yet have had any very prominent development of the orange-red marking submarginally, and the majority have only had a trace of it towards the anal-angle—in some barely apparent.

*Underside.*

*Forewing.* The dark marking, including that which occurs postdiscally and above innermargin, broader in general and more conspicuous than in nominate *thero*; the lighter portion of the wing immediately adjoining innermargin tending to be of a more whitish-grey tone.

*Hindwing.* Dark zones inclined to be more pronounced than in nominate *thero*, though not invariably so. Light discal series as described initially.

Length of forewing: 18·5-21·5 mm. (19·5 mm., in holotype).

*Female. Upperside.*

*Forewing.* Marking, in most specimens, of a more orange tone than in male, as is not infrequently the case in nominate race also.

\**Papilio thero* Linnaeus, 1764. *Mus. Lud. Ulr. Reg.*, p. 328, n. 146.

*Hindwing.* In general, as in nominate race, with the development or otherwise of the submarginal series of orange-red markings varying in individual specimens (in one paratype absent altogether and in two others only very fragmentary and dull, and not apparent in the upper part of its length). With one exception, this has not, in any of the specimens under examination, reached anything like the maximum development which may be attained in some females of nominate *thero*.

*Underside.*

*Forewing.* Features very largely as given for male.

*Hindwing.* As a whole, like that of male. The components of the discal series of silvery-white markings are in the female also, sharply and neatly defined in the lower half of the series, below the main "key" marking. (In one paratype the latter is extremely narrow and practically linear for the greater part of its length.)

Length of forewing: 21·25-25·0 mm. (23·5 mm., in allotype).

Body and ancillary parts, in both sexes, very much as in nominate race; end of antennal club usually less noticeably tipped with orange in *cedarbergae*.

♂ Holotype, WESTERN CAPE PROVINCE: Cedarberg, 18.xi.1972 (C. W. Wyekham); in Coll. C.W.W.

♀ Allotype, W. CAPE PROVINCE: data as holotype; also allocation of specimen.

Paratypes presented to British Museum (N.H.): data as holotype, 1 ♂, 1 ♀ (C.W.W.); British Museum Reg. Nos. Rh. 17320 and Rh. 17321.

Paratypes in Coll. C. W. Wykeham: as holotype, 18.xi.1972, 2 ♂♂, 3 ♀♀; 2.xii.1972, 1 ♂, 1 ♀; 11.xi.1973, 9 ♂♂, 2 ♀♀ (C.W.W.).

Paratypes in Coll. Dr Jeffrey Kaplan: as holotype, 25.xi.1972, 1 ♂, 3 ♀♀ (J.K.).

Paratypes in Coll. K. M. Pennington: as holotype, 11.xi.1973, 1 ♂, 1 ♀ (C.W.W.).

Paratypes in Coll. Transvaal Museum: as holotype, 18.xi.1972, 1 ♂, 2.xii.1972, 1 ♀, 11.xi.1973, 1 ♂, 1 ♀ (C.W.W.).

Paratypes in Coll. National Museum, Bulawayo, Rhodesia: as holotype, 18.xi.1972, 1 ♂, 1 ♀ (C.W.W.).

In one of the male paratypes the postmedian chain of silvery white markings of the hindwing underside is incompletely developed below the large central marking distad of the cell. While there is some variation in the degree of development of the dark marking of the underside, its greater development, in the forewing anyway, is in general, certainly characteristic of this race. The different proportions of the forewing, combined with the other characters, raises the possibility of another species being involved; but, as the present insect and the nominate one are not, as far as known, other than allopatric, these differences do not in themselves give any proof of a specific difference.

The male genitalia of *Ph. thero thero* have been described and figured by Murray in *Ann. S. Afr. Mus.*, **44** (6) (1956) and by Stempffer in *Bull. Br. Mus. nat. Hist. (Ent.) Suppl.* **10** (1967). The figures in the present paper give views of the dissected parts of the genitalia of *Ph. thero cedarbergae* and, for comparison, of *Ph. clavum* Murray; also the armatures of nominate *thero* and *cedarbergae*. Reference to the parts and any necessary explanation as to the form of mounting, etc., is given in the legend to the plate. It has not been possible, up to the present, to detect any constant differences of significance between the genitalia of *thero thero* and *thero cedarbergae*; some which at first appeared to exist seem to have been due only to normal individual variation in specimens and/or to small discrepancies in mounting, including the degree of compression of the valves. In the case of *Ph. clavum*, valves of this insect which have been examined have had the small sharp bulge below the main distal projection produced into a definite projection (as in the figure) and the tegumen and uncus combined have been larger in proportion to the rest of the armature than in the other taxa.

Another, unusually large, localised race of *Ph. thero* from Du Toit's Kloof, C.P. (alluded to by Clark and Dickson in *Life Histories of the South African Lycaenid Butterflies*, p. 197 (1971) has, judging by a single preparation, valves with a more definite, smaller projection, rather approaching that of *clavum*; and this insect will receive further investigation.

With regard to the habitat and habits of *Ph. thero cedarbergae*, C.C.W. notes: "This race of *Phasis thero* was found in November, 1972, in the Cedarberg Mountains not far from Cedarberg Post Office in low-lying scrub growing along the side of the Matjes River. The butterfly does not seem to wander far from its food-plant and it feeds mainly at Bramble flowers which grow amongst the shrub which appears to be the larval food-plant. The flight is very irregular and fairly fast. When approached the insect usually takes cover in the thick scrub and is therefore difficult to net. The best time for specimens seems to be early morning or late afternoon, when they are less active than at other times." A fresh female specimen of *Ph. clavum* was taken by Dr Jeffrey Kaplan in the same spot on 25th November 1972.

One additional taxon, *Phasis braueri* (described by the senior author in *Entomologist's Rec. J. Var.*, **80** (11) (1968)), completes the recognised members of this group.

The early stages of *Ph. thero thero* have been described and figured by Murray in *J. ent. Soc. sthn Afr.*, **2** (1939) and those of this species, *Ph. clavum* and *Ph. braueri* by Clark and Dickson (1971) (*op. cit.*).

"Blencathra", Cambridge Avenue,  
St Michael's Estate, Cape Town.

Genitalia of *Phasis*.

- Fig. 1. ♂ Genitalia of *Phasis thero thero* (L.) (left valve removed). (Melkbosch Strand, C.P.).
- Fig. 2. Left valve of above preparation.
- Fig. 3. ♂ Genitalia of *Ph. thero cedarbergue* subsp. nov. (left valve removed). (From type-locality).
- Fig. 4. Left valve of above preparation.
- Fig. 5. Valves, juxta and aedeagus of *Ph. thero thero* (L.) (2nd specimen). (Melkbosch Strand, C.P.).
- Fig. 6. Valve of *Ph. thero thero* (L.) (3rd specimen). (Klip Berg, nr. Darling, C.P.).
- Fig. 7. ♂ Genitalia of *Ph. clavum* Murray: basic portion of armature. (Piquetberg Mtn., C.P.).
- Fig. 8. Valves, juxta and aedeagus of above specimen of *Ph. clavum* Murray.

Figures 16 times natural size.

Note: Valves represented by Figs. 2 and 4 mounted under slight pressure, that by Fig. 6, under greater pressure.

## The Early Stages of *Lampronia praelatella* (Denis & Schiffermuller, 1775) (Lepidoptera: Incurvariidae)

By A. M. EMMET

Labrey Cottage, Victoria Gardens, Saffron Walden, Essex.

Stainton (1859: 296) states that the larva of *praelatella* feeds "in a flat case on the underside of wild strawberry leaves. ix-v". Meyrick (1928: 840) repeats this information, adding that the case is made of leaf fragments. Ford (1949: 188) likewise repeats what his predecessors had written, but states further that "the larva drops off the leaves at the slightest disturbance." Here Ford must have been quoting from another authority, since we know from his collection, which is now housed in the British Museum (Natural History) that he never himself bred *praelatella*. Jacobs (1949: 212) writes "the larva . . . feeds in a flat case on the underside of *Fragaria* leaves, often two or three to a leaf. The case is shaped like a figure 8. The larva is known in the case stage from August to May, and the adult moth appears in June; probably before entering the case stage the larva will be found to feed in the fruits or mine the leaves of the food-plant."

These statements give an incomplete and, in certain respects, an inaccurate account of the life history. The female has a chitinous ovipositor and, like many other members of the Incurvariidae, it pierces the leaf of the foodplant and oviposits beneath the cuticle. The egg is usually laid near the margin of a strawberry leaf, in many instances, near the apex. The larva in its first instar is a leaf-miner, consuming all the parenchyma between the upper and lower epidermis.





PLATE XIV



I have found these mines tenanted in late July and early August, there sometimes being more than one mine in a leaf. At the end of the first instar, in mid-August, the larva excises a small, fiddle-shaped case made from leaf-fragments (i.e. the upper and lower epidermis of the leaf) and thereafter feeds externally. At this stage Jacob's observation about communal feeding is correct, but it is most unlikely to continue to apply after hibernation.

I have failed to overwinter the larvae and there is therefore a gap in my observations. These are resumed in mid-May, when the larva is almost full-grown. The case, which is still fiddle-shaped, now measures about  $6 \times 4$  mm. It is three-coloured. At the centre is the original leaf-fragment, now pale brown; surrounding this is a greyish silken extension, needed to accommodate the growing larva; beyond this there is a white outer rim, constituting a second and final extension. The circumference of the case is covered in short strands of flossy silk.

Like certain other members of its family, it likes the leaf it feeds on to be partially withered. It therefore cuts off a large section of leaf, amounting to about one-third of the average-sized strawberry leaflet. It then spins its case securely to the underside of the leaflet, not necessarily the one from which the food has been taken, and attaches the severed leaf-tip to the underside of its case. Thus we have a sort of sandwich with the growing leaf above, the severed leaf below and the larval case as the filling in between. From this position the larva consumes the withering leaf it has provided for itself. It feeds "on the underside of strawberry leaves" only in so far as that is the situation in which it is found when feeding; its pabulum is the whole of the withered leaf, not just the lower surface. There is no question of the case "dropping off the leaves at the slightest disturbance": it is firmly attached by silk to the leaf above. The flossy silk perimeter of the case is probably the consequence of its attachment to a succession of leaves and subsequent severance.

In captivity, however, the behaviour is different, unless the larvae are reared on a potted plant simulating natural conditions. When they are kept in a container, their food has a tendency to wither, obviating their need to sever sections of leaf. In these circumstances, they tend to feed directly on the staler portions of the food provided for them, without spinning their cases to the leaves. When alarmed the larva retreats into its case, relinquishing its foothold; consequently the case does indeed fall readily from the leaf. Ford's description, therefore, fits the larva in captivity but is not applicable to its behaviour in the field.

Once the larval pattern of feeding has been recognised it is easy to find the case. The collector looks for leaves with the apical third missing. The line of severance may be straight, but is more often in a curve, roughly centered on the

apex of the leaf. When the case has been found, the leaf may be picked boldly since its silken attachment is secure.

Pupation takes place inside the case and one knows when this has occurred since the exuviae are extruded through the anal end. The aperture then springs back to a tightly shut position showing no trace of ever having opened. It is worth putting on record that of the eighteen larval cases I collected, all produced imagines without any parasites.

The moth has mainly a western and northern distribution. I have found it in Herefordshire, Westmorland and Co. Clare, in the last two localities on limestone. It seems to be rare in the south-east of England, though Stainton (1859: *loc cit.*) records it from Pembury in Kent and Morris (1872: 28) from Brighton; and Mr J. M. Chalmers-Hunt recorded it from Ham Street, Kent in 1957 and again in 1974. The larvae I have described were taken at Arnside Knott, Westmorland on the 12th May, 1974, where by a lucky chance I met Dr Lena Ward of the Biological Records Centre, Monks Wood; with the help of two assistants she was carrying out a survey of juniper. When we reached the spot where I had taken mines the previous July, we started to search and it was she who found the first case. The imagines emerged between the 9th and 29th of June.

#### REFERENCES

- Ford, L. T. (1949). *A Guide to the smaller British Lepidoptera*. London.
- Jacobs, S. N. A. (1949). The British Lamproniidae and Adelidae. *Proc. S. Lond. ent. nat. Hist. Soc.*, 1947-48: 209-219.
- Meyrick, E. (1928). *A revised Handbook of British Lepidoptera*. London.
- Morris, F. O. (1872). *A Natural History of British Moths*, 4: 28. London.
- Stainton, H. T. (1859). *A Manual of British Butterflies and Moths*, 2: 296. London.

## Those Mild Winters

By Dr M. W. HARPER

Cotham, Upperfields, Ledbury, Herefordshire

The winters of 1971/72 and 1972/73 have been exceptionally mild in a decade of comparatively mild winters. In Herefordshire I have been able to record common species of winter and early spring moths with greater frequency and in some species these records appear to indicate some spreading of emergence during these two winters and also in a few instances to prolonged survival of individuals.

*Operophtera brumata* L. appeared during the first week of November of both seasons, which is the usual initial appearance of this species in this district. However, I re-



corded the species as late as the 10th, 13th, 20th, 21st and 22nd January 1972, and on 1st, 2nd, 3rd, 4th, 5th and 24th January 1973. Similarly, *Erannis defoliaria* Clerck was seen as late as 3rd, 10th and 26th January 1972, while in the following year it appeared on 2nd, 3rd and 24th January 1973. Another species *Poecilocampa populi* L. was last seen on the 14th January 1972. On the following year the last was seen as early as 14th December 1972, having made it's first appearance on 29th October.

Of the late winter or early spring species of Geometridae, the most remarkable were the earliest dates that I have ever recorded for *Phigalia pilosaria* D. & S. A male appeared on 18th December 1971, while the last was noted on 25th March 1972. The following year, an even earlier male moth was seen on the 10th December 1972, and another on 28/12/72, while the last appeared on 21st March 1973. This demonstrates a considerable spread of appearance of over three months for these two seasons for this species. However, *Theria rupicaprararia* D. & S. and *Erannis leucophaeria* D. & S. were not to be enticed out so easily. The former appeared as late as 3rd February 1972, and 12th January 1973, while the latter species was first seen on 7th February 1972, and 25th January 1973. *Alsophila aescularia* D. & S. appeared in abundance from 24th January to 3rd May 1973, again a period of over three months.

This generally mild weather that prevailed for so much of these two winters, also enticed hibernating moths to fly. *Conistra vaccinii* L. was noted frequently throughout January and February of both winters, while *Eupsila transversa* Hufn. was seen on 2/12/1971 and 20/2/1973. A single specimen of *Acleris cristana* D. & S. seldom seen away from sloe and hawthorn thickets appeared at light on 28th January 1973. On 1st December 1972 a single *Lithophane ornitopus* Hufn. was found crawling up a hazel stem at night, and I found a further specimen at rest in the daytime on oak on 13/12/72. This last moth had disappeared a few days later when I revisited the tree.

There has always been some controversy about the habits and eventual fate of *Conistra ligula* Esp in winter. There are infrequent records in the past of the moth's appearance in the early months of spring, but unlike its close relative *C. vaccinii*, it is not usually considered to be able to hibernate successfully. In Herefordshire, moths are seen feeding on ivy blossom plentifully from late September and throughout October. In 1972 I found the species still out on 5th, 6th, 26th November and also 10th December. Dr B. Miles recorded a male on 4th January 1973 at light in Hereford, and on 25th January a female appeared at my porch light in Ledbury. This last moth I placed outside in a gauze container with moss and dead leaves and I was surprised to find that she survived without artificial feeding until the middle of

March. A few days later on the 19th I noticed that the moth had just died, having laid ova within the container, and only days before the first flowering male sallow catkins appeared in the wild. Despite careful search in the spring over a number of years I have failed to find *C. ligula* at light, sugar or sallow blossom.

Finally, on New Year's Day (1/1/1973), I found a slightly worn female *Brachionycha sphinx* Hufn. at rest on an oak tree near Ledbury. The moth had disappeared when I re-examined the tree two days later. The females of this species are elusive in the wild and are less frequently seen at light than the males. Records of both sexes appear at light in the last week of October and the first fortnight of November in this area. It is possible that the females normally survive longer than the males in the wild and the mild weather prevalent at the time may have a further influence on survival.

The present winter of 1973/74 has also been mild but I have not observed any unusually early or late appearances of our common winter or early spring species to date. Although mild, the weather has been more violent with strong winds and rain. This combined with the need to conserve lighting has greatly reduced the number of records.

## Studies on the Occurrence and Distribution of the Genera *Cionus* and *Cleopus* (Col.: Curculionidae) in South Hampshire, 1973

By P. CUNNINGHAM, B.Sc., M.I.Biol.

Department of Biology, City of Portsmouth College of  
Education

### Introduction

Weevils of the genera *Cionus* and *Cleopus* have interested the writer for some 3-4 years, but it is only during 1973 that detailed observations have been made and recorded. These beetles unlike most other weevils, live both as larva and imago ectophagously on their food-plant (though inside the young flower bud in the case of the young larvae of *Cionus hortulanus*). Various species of the two genera are sometimes found to co-exist on the selfsame plant specimen, the common figwort *Scrophularia nodosa*; and at least one species of *Cionus* is found on both *Scrophularia nodosa* and *S. aquatica*. Attempts to ascertain how various species, in spite of apparent competition, can co-exist are a subject of present investigations.

The species which are the subject of this report are — *Cionus hortulanus* Geof., *C. alauda* Hbst., *C. tuberculosus* Scop.,

*Cleopus pulchellus* Hbst. No other species of these genera were observed.

### Geographical Areas Covered

These observations have been in areas up to some 15 miles north and north-east of Portsmouth, together with one (fruitful) visit to the extreme west of Hampshire County. Twenty-nine (29) sites where *Scrophularia* spp. have been found have been examined; and also about the same number of sites of *Verbascum* spp. The mixed suburban/semi-rural/open rural nature of the areas, together with their considerable size, has precluded anything approaching full or systematic examination.

### Materials and Methods

In most cases small numbers of specimens were collected from infested sites. The perfect insects have a good defence mechanism: on one's approach they frequently 'play possum', and releasing their hold, fall to the ground where they are all but impossible to find. This reaction appears to be most highly developed in *C. hortulanus* and least in *C. alauda*. On rare occasions, the weevils may take to the wing. This seems associated with high temperatures—above about 25 deg. C. Specimens observed on the food plants may conveniently be caught with the aid of a specimen tube about 2.5 cm in diameter—though practice involving both stealth and speed is required.

Where larvae only, or larvae in addition to perfect insects were found, the former were collected, fed and allowed to reach the imago stage before identification was made. Placed in a plastic Petri dish perforated with twenty or so small holes made with a heated pin, the larvae thrived and reached maturity when fed every 2-3 days on lightly moistened leaves of the food-plant.

In one case it was possible to make a strong prognosis that more than one species was represented by comparing and finding considerable differences in the weights of co-existing pupae and imagos. The suspicions were subsequently confirmed after the pupae hatched.

### Observations

The reports on sites of *Scrophularia* spp. are presented in tabular form (sections A and B). Both infected and uninfected sites are included so that some indication of frequency is apparent. Map references are not included: work is intended at the sites in future seasons. There can be little doubt however that both food plants and weevils are common and widely distributed. Section C of these observations reports with reference to *Verbascum* spp.

A. Sites of *Scrophularia nodosa* (x=present, —=absent)

Site letter	No. of plants	Brief description of site and appropriate notes	Incident light (estimate) Open exposed site=1.0	<i>Cionus hortulanus</i>	<i>Cionus alauda</i>	<i>Cionus tuberosus</i>	<i>Cleopus pulchellus</i>
A	c.50	S.W. facing grassy slope (since 'cultivated' by Local Authority).	0.7	x	x	—	x
B	c.20	Roadside bank rural but fairly busy lane.	0.3	—	—	—	—
C	1	Bridle-path running E-W between high hedges.	0.2	—	—	—	—
D	c.6	Roadside bank, rural-residential area.	0.5	—	—	—	—
E	c.20	Rural District Council roadside dump for road sweepings. Beneath beech.	0.15	—	—	—	—
F	3	Roadside verge, rural, light traffic.	0.2	—	—	—	—
G	c.20	Waste ground adjacent to private garage complex (1972). Not infested 1973.	0.6	x	—	—	—
H	c.15	W.—facing chalky bank A3 Portsmouth-London Road.	0.8	x	x	—	—
J	c.20	Roadside verge. Heavy infestation 1969-1970. (None 1972 and 1973).	0.5	x	—	—	—
K	3	Rural footpath, sparse hedge both sides (1972).	0.4	—	—	—	—
L	c.200	Clearing in wood (oak, beech, ash, hazel) site c.40×100 m.	0.5 — 0.15	x	x	—	x
M & M <sub>1</sub>	2	Fairly open woodland (two nearby sites combined).	0.07	—	—	—	—
N	4	Rural footpath, sparse hedge both sides. Small oaks in hedge.	0.4	—	—	—	—
P	c.12	Footpath in mixed wood. (plants flowering very sparsely)	0.02	—	—	—	—
Q	4	Dell in mixed wood, species' identification not certain. (few larvae only: none taken).	0.05 0.02	x? —	— —	— —	— —
Q <sub>1</sub>	2	Woodland adjacent to Q.	0.02	—	—	—	—
R	c.10	Fairly open woodland, mixed; behind suburban development.	0.08	—	—	x	—
S	2	Chalky bank, S.W.—facing rural road.	0.4	—	—	—	—
T	2	Side of grassy lane adjacent to area of bracken and mixed wood.	0.6	—	—	—	—



U	c.20	Track on N. slope of sparsely wooded hill, chalk downs.	0.3	—	—	—	—
V	1	Sparsely colonized verge of new by-pass, coniferous wood nearby.	0.3	—	—	—	—
W	2	Roadside bank, rural road.	0.15	—	—	—	—
BB	2	Suburban/rural garden.	0.3	—	—	—	—
CC	1	Beside unmade road running N.—S. Meadow to E., trees to W.	0.3	—	—	—	—

B. Sites of *Scrophularia aquatica* (x=present, —=absent)

X	c.15	Roadside ditch—rural road.	0.25	—	—	x	—
Y	est.	Roadside ditch and its					
	1000	gently sloping banks— rural road.	0.7	—	—	x	—
Z	c.20	River bank of small river c.6 metres wide.	0.7	—	—	—	—
AA	c.20	Bank of deep stream c.6 metres wide (11 November 1973).	0.7	—	—	x	—

C. Sites of *Verbascum* spp.

In spite of examining an estimated 500 specimens of dark mullein *Verbascum nigrum* at some 20 sites, and also examining an estimated 80 specimens of hairy mullein *Verbascum thapsus* at some 10 sites; no weevils of any species whatsoever were found there by the writer.

### Discussion

Of the four species of weevils, only *Cionus tuberculosus* is reported here as being found on both *Scrophularia aquatica* and *S. nodosa*. *Cionus hortulanus* has been found on *S. nodosa* and on no other species of plant (except on grasses and brambles adjacent to *S. nodosa* during "flying weather"). The assertion of LINSSEN (1959) that dark mullein is the food plant of *C. hortulanus* is therefore suspect. SHERF (1964) reports four plant species as substrates for *C. hortulanus*; viz. *Verbascum nigrum*, *V. phlomodes*, *Scrophularia aquatica*, and *S. nodosa*. Up until this time, observations here reported admit to only the last-mentioned species as a food plant for this weevil.

Further, the writer found no specimens of *Cionus scrophulariae* L. whatsoever. Its description (LINSSEN 1959) as a "widespread species though local in distribution . . . which occurs on *Scrophularia aquatica* . . . *S. nodosa* and *Verbascum thapsus*" is consistent with FOWLER (1891) as to food plants. As to distribution, FOWLER remarks "rather local, but common where it occurs". His report includes reference to Winchester, Southampton, New Forest; but the Portsmouth district and Portsdown are not listed—conspicuously absent, one may remark, as Portsmouth and Portsdown feature frequently in reports on other beetles. The apparent absence of *C. scrophu-*

*lariae* thereabouts is within the writer's experience. SHERF (1964) reports SCOTT (1937) as having found larvae of *C. scrophulariae* on *Celsia aeturus*, *Buddleia globosa* and *Phygelius capensis*; flora that had been imported into Europe. Thus this weevil may be both rarer and less specialized in its food plants than is generally assumed.

The range of situations in which *Scrophularia* spp. infested with *Cionus* spp. and *Cleopus pulchellus* have been found is wide: incident light, substrate, degree of exposure of site (and probably ambient air humidity and temperature) varied greatly (see sites H.L., and R.; under Observations). No conclusions can be drawn here, though there is some indication that infestation is not restricted within a narrow range of habitats for those plants that these weevils utilize.

### Acknowledgements

I here acknowledge confirmation and correction of identification of species by R. T. Thomson of Department of Entomology, British Museum (National History). My thanks are also expressed to Dr. M. Ashby who introduced me first to *Cionus* spp., and to Mr Mark Smith who introduced me to a number of sites listed in the observations.

### References

- Clapham, A. R., Tutin, T. G., Warburg, E. F. (1964). *Excursion Flora of the British Isles*.
- Fowler, W. W. (1891). *The Coleoptera of the British Islands*, Vol. V., Reeve.
- Linssen, E. F. (1959). *Beetles of the British Isles*, Series II, Warne.
- Martin, W. K. (1969). *The Concise British Flora in Colour*, 2nd Ed., Ebury & Michael Joseph.
- Sherf, H. (1964). Die Entwicklungs-stadien der mitteleuropäischen Curulioniden (Morphologie, Bionomie, Ökologie), in *Abh. senckenb. naturforsch. Ges.*, **506**: 1-335.

## Observations on British Butterflies in 1973

By Dr C. J. LUCKENS

52 Thorold Road, Bitterne Park, Southampton SO2 4JG

The hibernating butterflies started moving out of their Winter quarters fairly early in 1973, and our first *Aglais urticae* L. was noted in Southampton on March 7th, with *Gonepteryx rhamni* L. following two days later. These two species were seen in and around Southampton throughout the first half of March, and *Nymphalis io* L. joined their ranks just after this when the weather was warm and sunny for several days. Toward the end of the month I spent a good deal of my spare time exploring a wood near Romsey where numbers of fresh *Brephos parthenias* flew in the sunshine, and where *Polygonia c-album* L. was recorded on March 21st. The month

went out with windy, cold weather — though we heard our first Chiff-Chaff on the 27th.

The three Spring Pierids emerged during the second week in April, and were flying in strength along with the bright form of *Pararge aegeria* L. in Hut Wood, near Chandlers Ford on April 25th. A week later this wood was virtually unrecognisable under the broad swathe of M27 roadworks.

The generally fine weather continued, and it was a real delight to see a favourite butterfly, *Antocharis cardamines* L. at Whiteparish on May 4th. Rather unusually, twice as many females as males were seen on this occasion, and nearly every sizeable spray of Cuckoo flower had at least one orange ovum *in situ*. *Clossiana euphrosyne* L. was flitting around in the rides of the Romsey wood on May 14th, and two days later this butterfly was out in abundance at Whiteparish. We watched female *euphrosyne* ovipositing on all types of low-growing plants, but usually where there was some *Viola canina* nearby. *Coenonympha pamphilus* L., *Lycaena phlaeas* L., and a few *Pyrgus malvae* L. were also seen here.

The fine weather conditions deteriorated a little on May 17th, but several freshly-emerged *Hamearis lucina* L. were seen when a part of Crab Wood near Winchester was visited. This butterfly is strongly entrenched here in local colonies, but, though I believe it is unusual in the wild for *lucina* to rely solely on Primrose as a food plant, I could find no Cowslip growing in the wood at all. Along with large numbers of *C. euphrosyne*, several *Callophrys rubi* L., *Erynnis tages* L. and *P. malvae* were also flying.

During intermittent sunshine on May 24th, my elder son and I went out to the downs near Winchester. *Aricia agestis* D. & S. L. *phlaeas*, and *C. pamphilus* flew freely in the bright spells, but only two or three *Cupido minimus* Fues. were seen.

A favourable weather forecast the following day sent me off on a search for *Melitaea cinxia* L. on the Isle of Wight. Conditions crossing the Solent were superb, and remained so on the island until I reached Blackgang, where I saw to my chagrin that the south coast was covered by a thick, chilling cloak of mist. This rolled around the Undercliff until about 3 p.m., when quite suddenly it cleared, and only then did *cinxia* fly. I found this butterfly extremely local, and there were long stretches of suitable-looking undercliff where it was completely absent.

The next day remained hot and sunny, and we all went to the Chiddingfold Woods. *Clossiana selene* D. & S. and *C. euphrosyne* were both on the wing, though their numbers seem to decrease every year in this locality. I saw only two or three *Leptidea sinapis* L. all afternoon. A quick look at a West Sussex wood on our way back, however, happily revealed *L. sinapis* in its usual abundance.

Wet weather intervened, but June 1st was fine and generally sunny, so I travelled up to Oxfordshire to look at a colony

of *Euphydryas aurina* Rott. On arrival I found this attractive insect flitting over the rough ground in fair numbers, but I was surprised to see many specimens already worn and tattered. After watching these butterflies for some time and talking to Mr and Mrs R. Stockley, who had arrived about mid-day, I decided to go to a nearby wood to look for larvae of *Strymonidia pruni* L. — only to find that my car keys were missing. These remained so in spite of a long search, and my car was eventually removed to Oxford by courtesy of the A.A. Thanks to the kindness of the Stockleys, who ferried me to phone boxes and went miles out of their way to get me a train connection, I eventually got home that night, and at the crack of dawn travelled back with spare keys. I managed to stop for an hour in a wood outside Oxford (a fact unknown to my wife to this day) and to my delight obtained a single *S. pruni* larva, which promptly the next day attached itself for pupation.

During mid-June, several larvae of *Thecla betulae* L. were obtained from blackthorn thickets in the Alton area, and also from a wood a few miles outside Southampton, where most of my entomological activities were concentrated at this time. Almost the first blackthorn bush I tapped in this wood produced, at one stroke of my stick, two fully-fed larvae of this local hairstreak.

My parents had very courageously offered to look after our children for a week, so near the end of June we all travelled to their house in Sussex. From there, on the 29th, I made a flying visit to Blean Woods to inspect a colony of *Mellicta athalia* Rott. in a secluded corner of the main woodland block. My wife and I first found this colony in 1968, visited it in 1970 and 1971, and it has gone from strength to strength. (*Vide* 1971, *Ent. Record* Vol. 83, p. 261). I was delighted to obtain a superb *ab. cymothoe* Bertolini (= *navarina* Selys) almost identical to that illustrated in the new South's *British Butterflies*. This variety was flying with dozens of typical examples, but looked very distinctive on the wing.

The last day of the month was spent on the road westwards, and July 1st found us in Mid Wales watching *Argynnis aglaia* L. in the Vyrnwy valley. There were fresh *C. selene* on a hillside near Bala.

Having several days of Eisteddfod ahead of us, I persuaded my wife that we ought to take advantage of the continuing fine weather on July 2nd to visit the Great Ormes Head near Llandudno. On the way over I looked for *Coenonympha tullia* Mull. between Bala and Ffestiniog, and, after several stops, found a strong but local colony. This butterfly was flying among peat hags and heather in exactly the same habitat that I saw it first many years ago in North Skye. The weather on the Great Orme was superb, and as we twisted down the western escarpment in the car, *Eumenis semele* f. *thyone* Thompson constantly flitted about beside the narrow road. We stopped the car in a small rock cutting, and on the steep hill-



side above us were literally clouds of *Pebejus argus* f. *caer-nensis* Thompson. They particularly favoured dwarf brambles for their resting places, and many of these bushes were studded by dozens of little blue butterflies.

In the assiduous pursuit of his interests the entomologist can sometimes be misunderstood by the public at large. I received some very strange looks from passers-by when I called to my wife that I had just seen "a female so blue that I thought she was a male!" *E. semele thyone* was also very abundant, but not quite as plentiful as the blues.

After spending the morning at the well-known Wrexham Horse market on July 5th, we travelled east into Shropshire. An entrance was chosen into Whixall Moss virtually at random, and to our surprise we found *C. tullia philoxenus* immediately — flying in small numbers over a rather restricted area of peat moss. However, I can hardly believe that we contacted the only colony in this fortuitous way, and it would have been interesting to explore further if time had permitted. The day was beautifully rounded off when we stopped beside a river on the way back to Corwen, and a Merlin dashed over some alders and started chasing Swallows in front of us. Unsuccessful, he eventually swept over the trees mobbed by a twittering crowd of his erstwhile quarry.

On our way back to Sussex on July 7th, a rather skillful manipulation of our route took us through Wyre Forest around lunch-time. Two or three *Argynnis cydippe* L. sailed among swarms of *Aphantopus hyperantus* L. and *Maniola jurtina* L. along a ride bathed in bramble blossom.

We spent a few days with my parents near Haywards Heath, and on July 9th I went over to my favourite wood for *Apatura, iris* L. in West Sussex. This fine butterfly was not forthcoming, but ten other species were noted, including *Argynnis paphia* L., *A. aglaia*, *Maniola tithonus* L., and *Thecla quercus* L. *Limenitis camilla* L. was more abundant than I have ever seen it before, and among them was a superb *ab. nigrina* Weymer. This evaded the net by soaring over a vast sea of brambles; but the next day it was there in the same spot. I netted it as it flew by me, hit a spray of foliage in the follow-through, and to my intense disappointment retrieved a ruined specimen from the net.

After our return to Southampton I was pleased to see *A. cydippe* in the New Forest. Several of these butterflies were flying in one of the enclosures along with a few *A. paphia* on July 13th.

The following day I drove to Alice Holt in the late afternoon, and, in a well-known observation area, saw two *A. iris* flying high and powerfully around one of the largest oaks. They occasionally winged off down the ride and then returned to dashing restlessly around the tree-tops. *T. quercus* and *L. camilla* were about in good numbers, and as I left I collected two half-grown Puss moth larvae from a willow.

A brief visit to the New Forest on July 16th produced a

fine *A. paphia* f. *valesina*. One or two more of this variety were seen during the next two weeks, and *A. paphia* in general did quite well in the Forest this year. *P. argus*, also, seemed well up in numbers on the heathland.

Apart from a solitary *Celestrina argiolus* L. (a scarce species in 1973) seen in our garden on July 22nd, the next noteworthy entomological event was a visit to the West Sussex Woods on July 28th. Here, male *L. sinapis* of the second brood were in fair numbers—mostly at rest, as the weather was rather cloudy on this occasion.

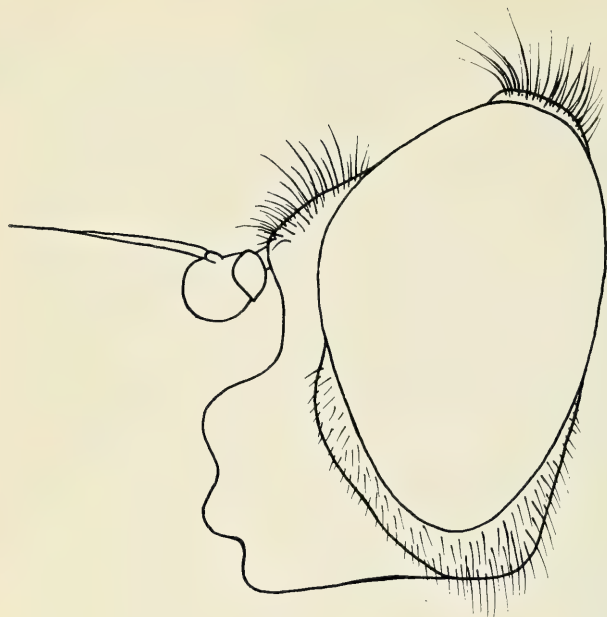
On the last day of the month *Melanargia galathea* L. was common at Whiteparish, and several *T. quercus* were also seen, but *A. iris* failed to appear. The following day I dropped into a wood a few miles outside Southampton, and to my surprise found a fine *Hyles gallii* Rott. at rest in bright sunshine on a scabious leaf.

A down near Stockbridge was the selected ground on August 3rd, and there *Hesperia comma* L. was flitting about in profusion. *Lysandra coridon* Poda was also common but already rather worn. I finished up at Alice Holt in the late afternoon, and to my delight found a single ovum of *A. iris*, after searching the sallows for about an hour. *H. comma* was still abundant on the Stockbridge down on August 7th, but some were starting to show signs of age. Large numbers of *M. jurtina* were flying there, and several had irregular pale patches on their wings. I took one with a silvery-pale ground colour replacing all the usual dusky brown.

An early start, and a fine sunny day spent searching the woods and downs of Sussex, enabled me to record twenty-six species of butterfly on August 13th. The first port of call was a copse in West Sussex. Both sexes of *L. sinapis* were flying in good numbers, with a few worn *A. paphia* and the commoner Satyrids; thistles and fleabane attracted many *N. io*, *A. urticae* and the occasional *P. c-album*; Large and Small Skippers, and fresh *Polyommatus icarus* Rott. were about; and there were several *P. megera* settling on the warm dusty track.

I left the comparative shade of the woods for the open downs, and on a long slope of hillside near Lewes *L. coridon* was out in strength. Some *coridon* females were just emerging and were *in cop.* before their wings were dry. *A. agestis* was in evidence also, and my first *Vanessa cardui* L. of 1973 displayed on the downland path. On the other side of the Ouse Valley *E. semele* skipped about the steep slopes of a chalk pit. It seems curiously local on these downs, and one can walk for miles without seeing a single specimen. I was disappointed to miss *Lysandra bellargus* Rott. which is usually quite common here in several places, but it often seems to emerge a few days earlier in the Eastbourne localities so I pressed on toward these. Sure enough, on a south-facing escarpment favoured by this delightful butterfly, the first brilliant males were flying. I was pleased to see that *H. comma* was still present in this locality.





**A**



**B**

*Cheilosia sahlbergi* Beck., profile of head

A: ♂ (after Becker)

B: ♀ (original)



Another chalk hill, this time in Wiltshire, was visited on August 18th, when we drove to the Heytesbury area. Around the *vallum* of an ancient hill-fort there were scores of *A. urticae* sunning on the scabious. *L. coridon* was also out in abundance, and a female approaching *ab. semi-syngrapha* was taken.

During the late summer *V. atalanta* became unusually abundant, and we could count on seeing at least half a dozen (along with two or three *P. c-album*) on fallen apples in our garden any sunny day in September. Though the last butterfly seen by us in 1973 was *A. urticae* (on valerian on November 4th) the continuing fine weather in Autumn allowed *V. atalanta* to fly right up to the end of October. During October one of my *H. lucina* pupae coloured ready for emergence, but as it failed to mature a night of mild frost must have been responsible for its untimely demise.

However, the highlight of the end of the season for me was another *iris* larva which I found on October 13th; at the time of writing, both this, and the product of the August *ovum*, seem to be hibernating successfully on growing willows in our garden.

## *Cheilosia sahlbergi* (Diptera : Syrphidae) in Britain

By MARTIN C. D. SPEIGHT

(Dept. of Zoology, Trinity College, Dublin, 2, Eire)

In 1962 I caught a specimen of *Cheilosia sahlbergi* Becker (1894) in the Scottish highlands and subsequently recorded its occurrence in a note on Scottish hoverflies (Speight, 1966). However, the characteristic features of the species were not mentioned then, and no description of the species is available in English, so I have attempted to list its diagnostic features here. In the head-profile figures accompanying Becker's original description (Becker, 1894) the male is labelled as the female in the legend, and vice versa, which is a bit confusing. Head profiles of *C. sahlbergi* are also figured in Bankowska (1963), but the illustration of the male does not tally very well with Becker's figure. The figure of a male head profile accompanying this note is taken from Becker (1894), enlarged for parity with the figure of the female, which is taken from the Scottish specimen.

Whilst in Ireland I have collected two more *Cheilosia* species in the black-legged, hairless-eyed group which are none of those currently known from the British Isles, and which so far defy identification. If there are other Dipterists who have collected species in this group which do not key out satisfactorily using Coe (1953), I would be most grateful for the opportunity to examine the specimens concerned.

I can find no points of disagreement between my specimen and the description Becker gives of *C. sahlbergi*. This species can be distinguished from the other species with all-black legs

and hairless eyes which are known from the British Isles (including the two un-named species mentioned above) from its possession of the following combination of characters:

♂ Thorax finely punctured, with long black hairs and much shorter yellow-brown hairs, shining blackish-green; scutellum with long, black hairs at margin; tergite 2 with a patch of long, black, outstanding hairs at each lateral margin; short, black, adpressed hairs towards the centre of each tergite, abdominal hairs otherwise fawnish-yellow. Additional features: frons and vertex black-haired; 3rd segment of antennae dark red-brown, as deep as long; face bare, yellowish-grey dusted on the genae (for profile see fig. 1: Becker does not show the facial dusting in his figure).

♀ Thorax finely punctured, shining olive-green, with two longitudinal bands (easily seen by looking along the thoracic dorsum, from in front) of long black hairs occurring within a general covering of shorter yellow-brown hairs; scutellum with 4-6 long, black bristles at margin. (Sack (1932) in his description of ♀ *C. sahlbergi* does not mention the bands of black hairs on the thorax, though these are precisely described in Becker's original description and obvious in the Scottish specimen).

Additional features: Frons narrower than an eye, more or less flat but with a shallow, shining, hairless, longitudinal depression; frons with long, yellow-brown and black hairs; face dusted on genae (for profile see fig. 2); abdominal hairs sparse, brown; wing-length 6.5 mm.

*C. sahlbergi* is seemingly a montane species on the wing in May and early June, known from Finland, Germany, Poland and Switzerland. The Scottish specimen was caught on flowers of *Potentilla erecta* in a somewhat boggy area near a stream, on open montane heathland at an altitude of 2,500 ft., on Beinn a' Chuallaich in Perthshire.

#### Acknowledgements

I first sent this specimen to J. E. Collin, who suggested it was *C. sahlbergi*. More recently E. Torp Pedersen (Zool. Inst., Jelling, Denmark) kindly examined the fly and came to the same conclusion. I am also indebted to Adrian Pont and Ken Smith (Nat. Hist. Mus., London) for providing information.

#### References

- Bankowska, R. (1963). Syrphidae. *Klucz do Oznaczania owadów Polski*, **27**, (34), 236 pp.
- Becker, T. (1894). Revision der Gattung *Chilosia* Mg. N. *Acta Acad. Leop. Halle*, **62**, 521 pp.
- Coe, R. L. (1953). Syrphidae. *Handbooks for the Identification of British Insects*, **10**, (1). R. ent. Soc. Lond.
- Sack, P. (1932). Syrphidae. *Flieg. Palaearkt. Reg.*, **4** (4), 451 pp.
- Speight, M. C. D. (1966). Hoverflies. *Ann. Rep. Scottish Field Studies Association*, 1966: 21-22.



PLATE XVI





# *Semiothisa signaria* Hübner (Lep.:Geometridae) New to Britain

By R. TOMLINSON

51 King Street, Stanford-le-Hope, Essex

I captured this moth, a ♂ in good condition (Plate XVI, fig. 3), at m.v. light in the interior of Essex in the summer of 1970. That particular night was overcast, mild with little wind and ideal for the collector, with many species coming to my light and sheet. I showed the specimen to Mr H. C. Huggins who urged me to take it to the British Museum (Nat. Hist.). Accordingly, on 12th August 1971, I submitted the moth to Mr D. J. Carter who shortly after kindly wrote me to say that his colleague Mr D. S. Fletcher had examined the specimen and identified it as *Semiothisa signaria* Hübner, a species new to the British list.

I immediately communicated the above information to the Essex Naturalists' Trust who were delighted with the discovery but asked me as a safeguard not to publish an account of it. However, in the three years that have elapsed since then and despite a light having been regularly operated in the locality, no more *signaria* have occurred. It was agreed with the Essex Trust therefore that the above facts could be published though omitting certain details.

Prout (in Seitz, *Macrolepidoptera of the World—Palearctic Region—Geometrae* (1912), 346, plt. 18g) says the moth flies in June and July and describes it as follows: "Distal margin of forewing with scarcely appreciable sinus, tooth at 3rd radial of hindwing not long, ♂ antennal serrations not very long . . . no black mark at anterior half of distal margin". He figures it in colour. The moth is also figured in colour in Kirby (*Butterflies and Moths of Europe* (1903), plt. 47, fig. 8). Hofmann (*Die Raupen der Gross-Schmetterlinge Europas* (1893), plt. 42, fig. 6) gives a coloured figure of the larva which is green with whitish lines, head reddish. It feeds on *Pinus sylvestris* in August and September. Mr D. J. Carter informed me that "the foodplant of the species in Germany was recorded as *Picea excelsa*". Chretien (in Lhomme, *Catalogue des Lepidopteres de France et de Belgique*, 1: 399) says the larva "makes a hole in the needles of pine, wriggling in almost entirely in order to nourish itself" (Chalmers-Hunt's translation).

The species has a wide distribution abroad, its range extending from France through Central Europe, Russia and beyond.

I am indebted to Mr D. J. Carter, Mr J. M. Chalmers-Hunt, Mr D. S. Fletcher, Mr H. C. Huggins and others for information in the preparation of this article. I also wish to thank Mr Peter York for the photograph and to acknowledge permission given by the Trustees of the British Museum (Nat. Hist.) to reproduce it here.

## The Butterflies of the Maltese Islands

By ANTHONY VALLETTA, F.R.E.S.

257 Msida Street, B'Kara, Malta G.C.

The publication of my book "The Butterflies of the Maltese Islands" in 1972 has brought to light the visit to our islands of four other butterflies in July 1963. I got this information through a letter sent to me some time ago by the collector of these butterflies Flt. Lt., K. A. Harrison, who going through the book which he bought in London noticed that these four species were missing. He also sent me the "bits and pieces" of their wings to confirm his finds.

Unfortunately, these butterflies were never recorded and consequently they did not come to my knowledge when I was doing the research, and that is why they were not included in the book.

These four species are: *Catopsila florella* Fab., *Euchloe ausonia* Hub., *Tarucus theophrastus* Fab. and *Philotes baton* Bergstrasser.

In his letter Mr Harrison writes: "I was so fascinated by the number of butterflies I saw during my 3 days in Malta that I made a small, representative collection. I know that this was the one and only occasion that I have ever caught any butterflies abroad, (I am not really a collector) so there is no doubt that these specimens were taken in Malta. My interest in butterflies was somewhat less ten years ago than it is now, so I really didn't know what I was collecting. I just caught one or two of each type and they have been kept in an old tobacco tin ever since. I didn't manage to identify them until I got "A Field Guide to the Butterflies of Britain and Europe" by L. G. Higgins and N. D. Riley some two years ago.

Checking with a friend, P. R. Grey, who collected in Malta and whom I met last year, my Malta list didn't agree with his. It was only when your book came out that I realised I had some unrecorded species. My luck in discovering four species in one go, in one locality, seems almost unbelievable and I have actually wondered if there can be some doubt. But I know really that there is no doubt."

The short stay of Flt. Lt. Harrison with us must have coincided with an exceptional big migration of butterflies from nearby countries. *G. florella* is one of the most common butterflies of Africa. It appeared for the first time in Gran Canary and Tenerife in 1964 where it has settled. Its capture in Malta in July 1963 makes its first record of appearance in Europe. *E. ausonia* has a wide range of distribution. It is quite common on the coast of N. Africa and through Europe to Asia Minor. *T. theophrastus* is found throughout Africa, Southern Spain, Asia Minor and east to India. *P. baton* is widely distributed in Italy including Sicily, Corsica and Sardinia, as well as in Spain through central Europe to Asia Minor.

## A Tortrix New to Britain: *Pammene luedersiana* Sorhagen (1885)

By G. H. YOUTEN

18 Castle Avenue, Dover, Kent

A Tortrix new to Britain has recently come to light among some of the Genus bequeathed to me by the late Dudley G. Marsh of Littlebourne, near Canterbury. The specimen (Plate XVI, figs. 1 and 2) was caught by Dudley G. Marsh on 23rd May 1964, when we were collecting together in Scotland. From my diary I recollect that we were tramping over heather trying to net *Isturgia carbonaria* Clerck but there were many *Ematurga atomaria* L. and *Eulia politana* Haw. which together with a high wind made catching and identification difficult. This specimen must, I think, have been netted by him during the afternoon, which was cloudy with sunny intervals. It is labelled "Aviemore. D. G. Marsh. 23.5.64".

I am indebted to the Editor and to Dr J. D. Bradley of the British Museum (Natural History) for the identification of this rarity. I understand that there is only one other example of this species in the British Museum, which was taken in Greece. It has however, been recorded from Scandinavia and South-east Europe, though little or nothing seems to be known of the life-history. Diakonoff and Bentinck (1968, *De Nederlandse Bladrollers*, 96) state the larva is probably on Cynipid galls on oak.

I should like to thank Mr Peter York for the photographs and to acknowledge the permission given by the Trustees of the British Museum (Nat. Hist.) to reproduce them here. The specimen was exhibited by the President, Mr J. M. Chalmers-Hunt, at the Meeting of The British Entomological and Natural History Society on 10.i.1974. It has now been presented to the British Museum (Nat. Hist.).

---

## Antennal Variation in *Erioptera pilipes* (Fabricius) (Diptera: Tipulidae)

By E. G. HANCOCK

Department of Invertebrate Zoology, City of Liverpool  
Museums

Two specimens of *Erioptera* (*Trimicra*) *pilipes* (Fabr.), one of each sex, from the Rothampsted light trap set at Leighton Moss, Lancashire (SD478 750) showed quite distinctly that the last four antennal segments were abruptly smaller than the rest. Fresh material from South Lancashire and Gillingham,

Kent, supported this observation. As this was in disagreement with both Coe (1950) and the original generic description, the specimens of this species in the collections of the British Museum (Natural History) were examined. On a world wide basis 27 specimens were found to have the last four segments smaller, 15 had the last 3 smaller than the rest and 3 were undifferentiated towards the tip. 23 out of the 24 specimens from the British Isles were as my specimens, now in the reference collection in Liverpool Museums.

Osten Sacken (1861) states in erecting his genus *Trimicra* that "the last three joints (are) conspicuously narrowed and shortened". Subsequent authors have confirmed this (Alexander and McAtee, 1921; Wood, 1952). Even since the original description of this subgenus of *Erioptera*, the supposition that the antennae are invariable in this respect has been reproduced whenever it is discussed. This has been done in spite of a later paper by Osten Sacken (1886) in which he states that "the fact that the last 3 joints are abruptly smaller remains to be proved in the numerous exotic *Trimicrae*" and a reference in Edwards (1923) to a *T. pilipes* specimen from New Zealand in which the terminal joints "are scarcely differentiated from the next".

Alexander (1962) in the most recent summary of the subgenus *Trimicra* states that there is a surprising range in the physical size, hairiness of the legs, degree of intensity of the wing pattern and the course and length of vein 2A but fails to notice the equal variability in the antennae. For this reason, keys in Coe (1956) and Cole (1969), for example, might confuse the beginner when mentioning specifically that only the last three are smaller than the rest.

Thanks are due to the B.M. (N.H.) for facilities to examine their collections and to J.S.S. Charles for sending material from Kent.

### References

- Alexander, C. P. (1962). *Opuscula Zoologica*, **61**: 1-5.
- Alexander, C. P. & McAtee, W. L. (1921) Diptera of the Super family Tipuloidea found in the District of Columbia. *Proc. U.S. Nat. Mus.*, **58**: 385-435.
- Coe, R. L. (1950). *Handbks. Ident. Brit. Insects*, **IX** (2): 1-6.
- Cole, F. R. (1969). *The Flies of Western North America*, University of California Press.
- Edwards, F. W. (1923). A preliminary revision of the Craneflies of New Zealand. *Trans. N. Zeal. Instit.*, **54**: 265-352.
- Osten Sacken, C. R. (1861). Descriptions of nine new North American Limnobiaceae. *Proc. Acad. Nat. Sci. Philadelphia*, **13**: 287-292.
- Osten Sacken, C. R. (1886). *Berliner Ent. Zeitschrift*, **30**(2): 153-242.
- Wood, H. G. (1952). The Craneflies of the South-west Cape. *Ann. S. Afr. Mus.*, **39**: 1-327.







# New and Inadequately Described Aberrations of *Abraxas grossulariata* (Linn.) (Lep.: Geometridae)

By G. EVELYN HUTCHINSON

Osborn Memorial Laboratories, Yale University, New Haven, Conn. 06520 U.S.A.

This paper has been written to give formal descriptions and illustrations of certain new aberrations of the magpie moth, mentioned in a discussion of some aspects of polymorphism in a contribution to a forthcoming volume in memory of my former student, the late Professor Robert H. MacArthur. I take the opportunity also to publish notes on inadequately described, though named, forms of the species. Nearly all the material discussed is in the Rothschild-Cockayne-Kettlewell Collection now in the Natural History Museum in South Kensington, but reference is made to material in the Royal Albert Museum, Exeter and the Yorkshire Museum, York. My thanks are due to Mr A. L. Goodson of Tring, Mr D. J. Carter of the Natural History Museum, Dr Colin Simms of the Yorkshire Museum and the authorities of the Royal Albert Museum for their help when visiting the collections in their charge.

The terminology of the wing pattern used throughout the paper is that of Hutchinson (1969), as given in plate XVIII.

## Plate XVII

New or inadequately described aberrations of *Abraxas grossulariata*.

- a. ab. **perpallida** n.; holotype, Enniskillen; R.-C.-K. coll. B.M
- b. ab. **perpallida** n.; allotype, Aberdeen, Royal Albert Museum Exeter.
- c. ab. **perpallida** n.; ? Annersley, probably this aberration. R.-C.-K. coll. B.M.
- d. ab. **depauperata** n.; holotype, Hornsey Rise; R.-C.-K. coll. B.M.
- e. ab. **triumvirorum** n., holotype, Croydon; R.-C.-K. coll. B.M.
- f. ab. **eppingensis** n.; holotype, Epping; R.-C.-K. coll. B.M.
- g. ab. **eppingensis** n. paratype, Epping; R.-C.-K. coll. B.M.
- h. ab. **chalcobares** Raynor; holotype, Doncaster; R.-C.-K. coll. B.M.
- i. cf ab. **chalcobares**; no precise locality, ex Oberthür coll.; R.-C.-K. coll. B.M.
- j. ab. **raynori** Porritt; holotype, Tolson Museum, Huddersfield, after painting by Miss Gallwey; R.-C.-K. coll. B.M.
- k. ab. **odersfeltia** Porritt; holotype, Tolson Museum, Huddersfield, after painting by Miss Gallwey; R.-C.-K. coll. B.M.
- l. ab. **mixta** Porritt; holotype, Tolson Museum, Huddersfield, after painting by Miss Gallwey; R.-C.-K. coll. B.M.
- m. ab. **aureofasciata** Porritt; holotype, Tolson Museum, Huddersfield, after painting by Miss Gallwey; R.-C.-K. coll. B.M.
- n. ab. **cockayni** n.; holotype, Huddersfield; R.-C.-K. coll. B.M.
- o. ab. **cockayni** n.; paratype, Manchester; R.-C.-K. coll. B.M.
- p. ab. **nigrofusa** Raynor; Lancs stock, bred 1919; R.-C.-K. coll. B.M.
- q. ab. **lactea-sparsa** Raynor; Lancs. stock, bred 1919; R.-C.-K. coll. B.M.

ab. **perpallida** n. Black markings on the dorsal side of forewing limited to a small antemedian (AMDB2) spot at the base of the wing, a small costal spot, the extreme costal part of the antefascial black band, and small blackish-brown terminals. The three small but fairly conspicuous markings thus present just within the costa, are characteristic; in the holotype their pigment is confined to the dorsal surface. Discal spot brown; some faint brownish markings representing the central part of the antefascial and the postfascial black markings are present at the sides of the yellow fascia. Hindwing without discal spot but with small terminals visible only dorsally. Abdomen yellow. Span 42 mm.

♂, *holotype*. Enniskillen, Northern Ireland (J. E. R. Allen, 1908) R.-C.-K. coll. B.M. (Pl. XVIIa). All dark markings are slightly larger on the right than on the left hand wings.

♀, *allotype*. Aberdeen, Scotland (reared W. L. Newman 12 July 1910) Royal Albert Museum, Exeter (Pl. XVIIb). Very like the holotype but with indications of a proximal as well as a distal antemedian spot at the base of the wing and with a blackish discal spot.

♂, ? Annersley, England (A. T. Mitchell) R.-C.-K. coll. B.M. This specimen differs from the two types in having some black pigmentation ventrally below the spots within the costal margin of the forewing and in having a row of black spots on the abdomen; in other respects its dark markings are less developed, the terminals being obsolete on the forewings and absent on the hindwings, though the left hindwing has a brown discal spot (Pl. XVIIc). The scaling is somewhat defective. Attribution to *perpallida* is perhaps a little tentative.

All three specimens, in spite of slight differences, look very much alike in their pallid coloration, relieved primarily by the three dark marks just within the costa of the forewing. Very extreme ab. *dohrni* Koenig, referrable to ab *centralipuncta* Raynor, have no costal spot (Aberdeen, Newman 10. VII. 1910; R.-C.-K. coll.) or lack almost all dark pigmentation except the discal spot (Roydon, Suffolk. G. J. Baker 18. VIII. 1955; R.-C.-K. coll.).

If my sexing is correct, *perpallida* cannot be the unknown phenotype simultaneously expressing both *dohrni* and *paucisignata* Lempke which would be expected to be very pale, but which may be lethal (Cockayne 1937).

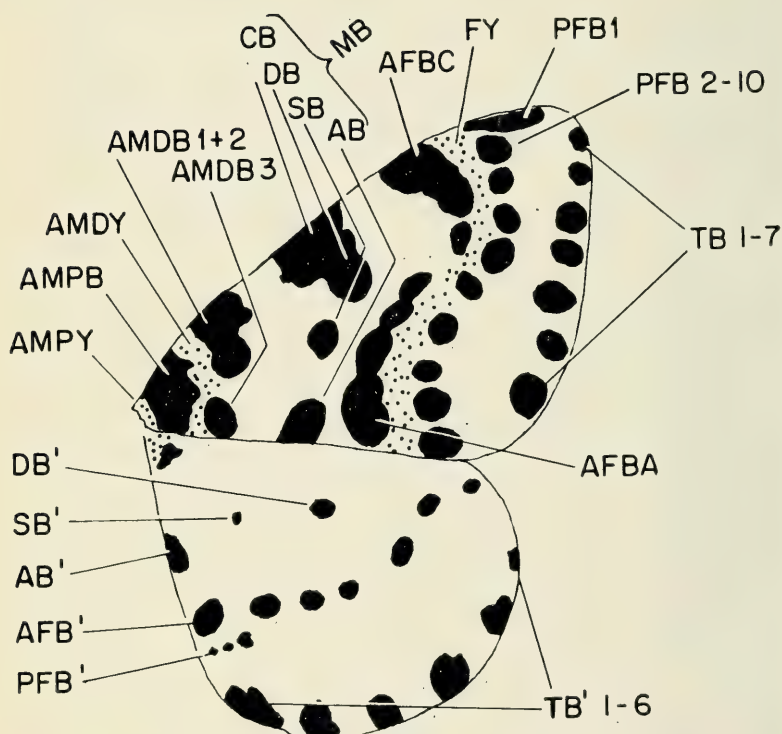
The ? Annersley specimen, the Aberdeen specimen of ab. *centralipuncta* and a very similar specimen, but with a faint violaceous suffusion (Angleterre, Oberthür coll.; with label "Figured Études d'Ent. 1896 20 Pl. 21 fig. 360. Lep. Comp. 1925. 22 (2) Pl. 599. fig. 5113") were placed at the end of the series of ab. *paucisignata* by Cockayne.

ab. **triumvirorum** n. Anterior wing with the dark markings of the costal half obsolete, represented by very feeble antemedian spots, a brownish faint discal and traces of brownish postfascial markings which become somewhat stronger in the





# PLATE XVIII



Diagram, based largely on the Linnaean type which is however, a little too heavily marked to be quite representative, of Figure 1. Diagram, based largely on the Linnaean type which is however, a little too heavily marked to be quite representative, of the black (heavy black) and yellow (stippled) markings on the upper surface of the wing in *A. grossulariata*. AMPY, proximal antemedian yellow marking, AMPB, proximal antemedian black band, AMDY distal antemedian yellow mark, AMDB 1+2, 3, the three antemedian black spots, the first two fused. CB costal black spot fused to DB discal black spot, SB subdiscal black spot, AB anal black spot, AFBC costal and AFBA anal portions of antifascial black band; PFB 1, PFB 2-10 postfascial black markings, FY yellow fascia. TB 1-7 black terminal spots. Hind wing symbols as forewing with prime.

anal part of the wing; anterior terminals obsolete, posterior three small but conspicuous; hindwing with a full set of terminals, though the first is subobsolete, pigmented both dorsally and ventrally; abdomen with three rows of black spots; span 44 mm.

♀ *holotype*. Croydon (G. C. Goldthwaite) R.-C.-K. coll., B.M. Distinguished by the obsolescence of all the dark markings on the wings save the last three terminals of the forewing and all but the first of those of the hindwing. Though the latter markings are small, they are quite conspicuous by contrast (Pl. XVIIe) with the rest of the wing.

ab. *depauperata* n. All black pigment absent, discal spot dark brown, distal black fascial markings replaced by yellowish brown merging into yellow fascia. terminals brownish yellow on both wings. Span 31 mm.

? ♂ *holotype*, Hornsey Rise, 1913, R.-C.-K. coll. This small and rather wretched-looking specimen is of interest, as showing that when black pigment is absent, some, but not all, of the dark markings are still indicated by a brown pigment. It was labelled 'albino' by Cockayne, but this is an inappropriate description as yellow and brown pigments are present (Pl. XVIIId).

ab. *nigrolutea* Raynor (1907). This aberration was described as *lutea* Cockerell with an unusual amount of black on the front wings. The descriptions (1907, 1920) give no indications of the disposition of the black. Ten specimens in the R.-C.-K. collection are referred to the aberration, the most extreme being one of Raynor's labelled "Yorks. ex2 '20". The only one bearing the name *nigrolutea*, on a label on the pin, is stated to be from "Harwood Sale 1912." This specimen presumably gives some idea, in default of a known type, of what Raynor meant by "an unusual amount of black on the forewing." It is like Lempke's figure (Lempke 1951, fig. 8) of ab. *nigrofasciata* Raynor in which the antefascial band and the postfascial spots tend to fuse over the yellow fascia, but with the black somewhat more extensive and the pale areas suffused with yellow, the hindwing being pale yellowish with indications of a deeper yellow fascia. Raynor's most extreme specimen is comparable, but the black markings are more extensive, approaching ab. *hazeleighensis* Raynor. The name *nigrolutea* clearly designates more than one genetically distinct phenotype, and is moreover unnecessary, the specimens to which it refers being reasonably named *lutea-nigrofasciata*, *lutea-hazeleighensis* etc.

ab. *rubrolutea* Raynor (1909). This is an intense form of *lutea* in which the ground colour of the forewings is reddish-orange, with the hindwings slightly paler. It would not be surprising if it proved to be homozygous *lutea* combined with the gene that converts the ordinary yellow or yellowish orange fascia of *grossulariata* into the reddish orange fascia of *igneofasciata* Raynor (1909). The R.-C.-K. collection contains five specimens of *rubrolutea*; of these four were bred

by Raynor between 1909 and 1927, the earliest one being just too late to be designated a lectotype. The fifth specimen, presumably wild-caught or bred from a wild larva, is from Angmering, Sussex 1898; it is just as splendid as the others. There is also a specimen of *rubrolutea-nigrolineata*, marked Lancs. ex 11 '23 and one of the *rubrolutea-lunulata*, labelled Lancs. Quibell Ex 4.1926. It must be admitted that although these seven specimens are highly characteristic when examined by themselves, some specimens of supposedly homozygous *lutea* approach *rubrolutea*.

ab. *nigrosarsata* Raynor (1903). This aberration seems to have appeared in South Wales before 1900 (Barrett 1901). Porritt (1921) gave an account of its increasing proportion in the Huddersfield population between 1905 and 1917, when nearly 10% was of this form. Subsequently the species became very scarce and when it reappeared in numbers, the proportion of *nigrosarsata* was much reduced.

Through the kindness of Dr Colin Simms, I have been able to study the collections in the Yorkshire Museum. Of the twenty specimens collected by T. H. Allis before 1870, and clearly selected to show as much variation as possible, including a nice ab. *actinota* Raynor, there are no typical *nigrosarsata*, though one specimen has some extra black spots, larger than in that form, on the hindwing. In the H. Dobson collection, made between 1905 and 1925, there are sixty-eight specimens of *A. grossulariata* of which twenty-one are *nigrosarsata* to varying degrees. Although the series again clearly contains all the more aberrant specimens that Dobson could collect and is certainly not a random sample, it is evident that at York, as at Huddersfield, it was far easier to obtain *nigrosarsata* in the first quarter of the present than in the middle of the last century.

ab. *eppingensis* n. All black markings somewhat enlarged and some of them greatly so, but in a very irregular and asymmetrical manner. Span 41 mm.

♀, *holotype*; and 4 ♀ *paratypes* with one of uncertain sex (Pl. XVIIIf, g) Epping, England, (June 1933, H. D. Smart) R.-C.-K. coll. B.M.

The aberration is presumably genetically determined; the individuals of the typical series may well be sisters. In the strong asymmetry of the pattern on the hindwings as well as of that of the forewings, ab. *eppingensis* presumably differs from the "small, rather dark, prettily marked form, of which a great many individuals have the markings asymmetrical on the forewings" recorded by Stonell (1905) from Perth, but unhappily, like so many other forms of *A. grossulariata*, apparently never figured.

ab. *chalcobares* Raynor (1907). The whole of the pale area of the forewing, except the white between the post-fascial black marks and the termen, yellow, suffused with dark grey, as in ab. *nigrotincta* Raynor, giving the uniform bronze appearance of the ground colour, implied by the



name. The hindwing is dark grey as in *nigrotincta*, yellow being limited to a well marked fascia of a kind also often found in ab. *dohrni*. The specimen, marked type at the side, bears a label "bred Doncaster 1903". Raynor says it was "reared from a Lancashire larva, by a friend of mine in 1904, and generously presented to myself". The date is presumably given incorrectly by Raynor; if the county of origin is correct, the friend may have been none other than Leonard Doncaster. It is however just possible that both date and locality are given wrongly in the original description and that the larva came from Doncaster, Yorkshire.

Though known from the unique type for seventy years, ab. *chalcobaris* has apparently never been figured (Pl. XVIIh).

Below the type in the R.-C.-K. collection, there is a specimen without indication of locality, from the Oberthür collection, in which the forewing has all the pale areas proximal to the fascia suffused with grey, as in *chalcobares* but without the yellow of the latter form; the hindwing has the typical pattern of *grossulariata* (Pl. XVIIi).

ab. *raynori* Porritt (1920). The whole of the area proximal to the yellow fascia is obliterated by black; the fascia is wide and seems to be somewhat irregular, with its distal margin displaced proximally; the postfascial black spots are somewhat elongate, but owing to the proximal displacement of the fascia, the white space between these spots and the terminals is very wide; the antefascial band of the hindwing consists of large irregular blotches.

This form, of which no figure has been published, was reared by Porritt from an original pair and is said to have bred true, so is probably an autosomal recessive.

I have not been able to study the Porritt collection in the Tolson Museum at Huddersfield, but believe it is desirable to figure this (Pl. XVIIj) and the next three forms from water-colour paintings by Miss Gallwey, prepared for Cockayne (1937). exhibited by him<sup>1</sup>, and then placed in the R.-C.-K. collection.

There are a number of specimens in that collection in which the whole or almost the whole of the area between the basal antemedian yellow mark and the yellow fascia is black. These differ from ab. *hazeleighensis* Raynor mainly in the clear orange-yellow fascia and the distinct postfascial white area; only one has all the characters of *raynori*.

ab. *odersfeltia* Porritt (1920). Like the preceding but with some white proximal to the yellow fascia. The postfascial black spots moreover are not elongate and the hindwing is as in typical *grossulariata*. The pattern has a washed out or dilute appearance.

<sup>1</sup>In the report of the Annual Exhibition and Conversazione of the South London Entomological and Natural Society, at which these paintings were exhibited by Cockayne, there is no mention of that of ab. *raynori*, but it clearly belongs with the others then shown.

Porritt's description is not at all clear and does not agree with the illustrations of the type (Pl. XVIIk). There is a specimen in the R.-C.-K. collection from Huddersfield which resembles the painting fairly well, and another, with postfacial black marking obsolete except near the anal margin and a very washed-out appearance, from the New Forest, presumably belongs here.

ab. *mixta* Porritt (1920). Described as differing from *odersfeltia* in having the broad costal black band interrupted by two white spots and in lacking the washed-out appearance. The figure of the type (Pl. XVIII) is not in very good agreement with the description. Porritt had six or seven specimens reared from wild larvae taken at Huddersfield and believed that there was a specimen in the Sydney Webb collection; this may have been an insect figured by Barrett (1901; Pl. 321 fig. 1c). There are three specimens in the R.-C.-K. collection labelled as "near ab. *mixta* Porritt." They do not seem to me to belong with this aberration.

ab. *aureofasciata* Porritt (1920). Proximal antemedian black band obsolete; costal margin with a wide black band interrupted centrally, apparently produced by fusion of the distal antemedian and costal spots and by the spread of the costal part of the antifascial black markings proximally down the costa; a second antemedian distal black spot, elongate towards the subdiscal and a third towards the anal spot; yellow fascia of a deep golden colour, very wide, bordered with small postfascial spots, which are separated from the small terminals by a wide white area.

The painting of the type (Pl. XVIIIm) of this beautiful form was placed in the R.-C.-K. collection with such well-marked synthetic derivatives of *dohrni* as ab. *gloriosa* Raynor. No information is available about the underside of the wing. Ab. *aureofasciata* is however almost certainly an independent mutant occurring very rarely in nature; three specimens were reared from wild larvae taken at Huddersfield by Mr James Lee.

In the R.-C.-K. collection there are specimens bred both by Raynor and probably by Onslow (21 VIII ♀ 26) also. These are labelled as *aureofasciata-nigrocostata*. In them the golden yellow extends from the fascia almost to the base of the wing. They look like *dohrni* combined with *aureopicta* Cockayne.

ab. *cockayni* n. Forewing with distal antemedian black spot fused with costal and costal part of antifascial black marking to produce a heavy costal stripe interrupted on its extreme costal border by a minute white spot; antifascial markings extended proximally to form a stripe parallel to the costal stripe and separated from it by a narrow elongate white mark which may be divided; anal spot fused with anal part of antifascial black markings; anal part of yellow fascia extended proximally above the fused anal spot towards the base of the wing; antifascial black spots of hindwing well

developed, abdomen ringed with black. Span 46 mm.

♀, *holotype*, Huddersfield (Pl. XVIIIn); and ten ♀ paratypes, mainly from Kent (no precise locality, Bexley) and the north of England (Hull, Huddersfield (2), Manchester, Liverpool) or without precise locality (Pl. XVIIIo).

The form was separated by Cockayne as showing the "orange fascia extending towards the base, ab. nov," but was never described. I have much pleasure in dedicating it to his memory.

There is some variation in the minute white mark on the costa, in the extent of the linear pale area on the disc and in the colour of the latter; in one Huddersfield specimen it is yellow. Ab. *cockayni* is formally *nigrocostata-nigrolineata*, or what Onslow (1919) called *nigrocostata* + + +, but with the yellow of the fascia extending proximally as in *raynori* or *aureopicta*. As it has occurred a number of times in nature it is probably due to a single gene, which may possibly be sex-linked.

ab. *lactea-sparsa* Raynor (1907). This is a peculiar form described by Raynor as "of the *flavofasciata* (i.e. *dohrni*), type only that the hindwings have the horizontal band of black central spots well developed; but the peculiarity is that the forewings are densely dusted with blackish brown." The original specimen came from a Hazeleigh larva.

There are six specimens, all bred by Raynor, over this name in the R.-C.-K. collection. They are quite variable but resemble one another in having such black marking, except the terminals, as are present on the forewing, with ill-defined edges, as if they had been smeared parallel to the venation.

The degree of smearing is variable; it is most noticeable in the region of the fascia and is confined to the forewings. In the series examined the markings of the hindwings are small. Raynor's description is obviously vague, and so far as the hindwings are concerned is not applicable to these specimens. None of them bear individual labels indicating that they are ab. *lactea-sparsa*. Nevertheless the form that they exemplify is highly characteristic (Pl. XVIIq) and it is unlikely that Raynor would have refrained from naming it. It may well be due to a single gene and have nothing to do with *dohrni*.

ab. *nigrofusa* Raynor (1920). Described as a form of *dohrni* having the greater part of the forewing clouded with blackish brown, a description which hardly separates it from *lactea-sparsa*. The single specimen in the R.-C.-K. collection, bred by Raynor, looks like a synthetic form involving *lactea-sparsa* and one of the *nigrocostata* genes (Pl. XVIIp).

#### References

- Barrett, C. G. (1901). *The Lepidoptera of the British Isles*. vol. II. *Heterocera Geometrina*. London.
- Cockayne, E. A. (1936). in Abstract of proceedings of meeting of 14 Feb. 1935. *Proc. Trans. S. Lond. entom. nat. Hist. Soc.* 1935-6: 1.

- (1937) in Annual exhibition and conversazione. *Proc. Trans. S. Lond. entom. nat. Hist. Soc.*, **1936-7**: 43.
- Hutchinson, G. E. (1969). Some Continental European aberrations of *Abraxas grossulariata* Linn. (Lepidoptera) with a note on the theoretical significance of the variation observed in the species. *Trans. Conn. Acad. Arts Sci.*, **43**: 1-24.
- Lempke, B. J. (1951). Catalogus der Nederlands Macrolepidoptera, X. *Tidschrift voor Entomol.*, **94**: 227-320.
- Onslow, Hon. H. (1919). The inheritance of wing colour in Lepidoptera 1. *Abraxas grossulariata* var. *lutea* (Cockerell.) *J. Genet.*, **8**: 209-258.
- Porritt, G. T. (1920). Descriptions of ten new varieties of *Abraxas grossulariata*. *Entom. month. Mag.*, **56**: 99-102.
- , (1921). The Huddersfield varieties of *Abraxas grossulariata* with description of a new variety. *Entom. month. Mag.*, **57**: 128-135.
- Raynor, G. H. (1907). Further notes on *Abraxas grossulariata*. *Entom. Rec.*, **19**: 83-84.
- , (1909). Further notes on *Abraxas grossulariata*. *Entom. Rec.*, **21**: 270-272.
- , (1920). A compendium of the named varieties of the large magpie moth *Abraxas grossulariata* with label list . . . obtainable only of the author, Hazeleigh Rectory, Maldon, Essex.
- Stonell, B. (1905). in Abstracts of proceedings of meeting of 12th May, 1904, *Proc. S. Lond. entom. nat. Hist. Soc.*, **1904-5**: 66.

## *Phyllonorycter mulleriella* Zeller (*amyotella* Duponchel) (Lep.: Gracillariidae) in Britain

By A. M. EMMET

Labrey Cottage, Victoria Gardens, Saffron Walden, Essex

My wife and I spent last Christmas in north Lancashire, and on the afternoon of Boxing Day we went for a walk on Arnside Knott, which is just in Westmorland. There are many young oaks growing on the Knott, and these tend to retain their dead leaves through the winter until the new growth replaces them in the spring. So we started to search on these trees for vacated mines of the *Ectoedemia subbimaculella* group for recording purposes. We were not very successful, for *E. albifasciella* Heinemann was the only species we could find, and so I rather casually turned my attention to the *Phyllonorycter* mines which were far more numerous. I collected a bag of about three dozen and subsequently kept them indoors in a warm room. About half produced parasites (still to be determined) and there were ten *Phyllonorycters*; eight of these were *quercifoliella* Zeller and the other two were *mulleriella*. These latter emerged on 22nd and 31st January. Since *mulleriella* is an extremely scarce and local species which has



seldom, if ever, been recorded in recent years, I have done a little research into its distribution.

Meyrick (1928) gives the range as "Gloucester, Worcester, Lancashire to Durham". This indicates two areas for its occurrence, the west midlands and the north of England. Let us first consider the midlands.

The Gloucestershire records seem to be based on captures made by Sircom in the Bristol area in the middle of the last century. The only exact locality I have traced is Brislington, which is, in fact, in Somerset. Brislington is now a very urban suburb of Bristol and is no longer a likely locality. One of the specimens of *mulleriella* in the Bankes collection at the British Museum (Natural History) is labelled "ex coll. Mason". There was a good nineteenth century collector called Mason who lived at Clevedon, on the Somerset coast about five miles out of Bristol, and if this was his specimen, it may have come from north Somerset. Fletcher and Clutterbuck (1943) quote Meyrick as the authority for the occurrence of *mulleriella* in Gloucestershire, and can add nothing else except that a Gloucester schoolmaster gave Clutterbuck a specimen without date (? data) in 1932. *The Victoria County History for Worcestershire* (1901) includes *mulleriella* solely on the authority of Meyrick without knowledge of his source. The neighbouring county of Herefordshire is far better worked, because it had J. H. Wood, a resident microlepidopterist of distinction; but Wood does not include *mulleriella* in the list he wrote for the *Victoria County History of Herefordshire* (1908), nor is there a specimen in his collection. So it would seem that only the Bristol area has well authenticated records, and there is no reason why it should not still be present in good localities such as Leigh Woods or Goblin Coombe.

Records for the north of England are more numerous. *The Victoria County History of Westmorland* (unpublished, but extant in proof form in the library at the British Museum) is the most precise, for it states that T. H. Allis took a specimen near Windermere in 1849 (recorded by Stainton in 1850) and that Hodgkinson captured "a few" at the same locality in 1888; there were, however, no subsequent records up to 1908. The Bankes Collection has seven specimens taken by Hodgkinson, which may be the ones from Windermere. Other north country localities culled from the several works listed below under "References" are as follows: Cumberland: Keswick and Carlisle; Durham: Darlington; Yorkshire: Richmond, Scarborough and York. Threlfall has twelve specimens in the Bankes Collection; he lived at Preston in Lancashire but also collected in Westmorland. Sang, who was the authority for Richmond as a locality and probably also for Darlington, also has a specimen in the Bankes Collection. One other in that collection is labelled "ex coll. Shepherd": I have no knowledge of the collector or his district. Neither Ford nor Waters ever took *mulleriella*, but the former has four specimens "ex coll. Hanbury"; here again, I have no further particulars.

The mine of *mulleriella* is indistinguishable from that of *quercifoliae*, and both species pupate in a translucent cocoon edged with frass; when held up to the light, the cocoons appear to be placed in an elongated black "U". In this aspect they differ from some of the other oak-feeding Phyllonorycters, which encase their cocoons completely in black frass. Ford (1949) states that *mulleriella* is "reputed to feed on leaves at the top of a tree". This seems to me like an aetiological theory to explain away failure to find the mine; at any rate, the mines I found were within easy reach of the ground.

I recommend collectors to gather mines of the type I have described and in the localities such as those I have mentioned, and it may well transpire that *mulleriella* is not such an elusive quarry after all.

#### REFERENCES

- Fletcher, T. Bainbrigge and Clutterbuck, C. Granville (1943). Microlepidoptera of Gloucestershire. *Proc. Cotteswold Nat. Fld. Club*, **28** :; 58-66.
- Ford L. T. *A Guide to the Smaller British Lepidoptera*, London.
- Meyrick, E. (1928). *A Revised Handbook of British Lepidoptera*, London.
- Morris, F. O. (1872). *A Natural History of British Moths*, London.
- Stainton, H. T. (1859). *Manual of Butterflies and Moths*, II. London.
- Turner, A. H. (1935). *Lepidoptera of Somerset*, Somerset Archaeological and Natural History Society, Taunton.
- The Victoria County Histories of Cumberland (1901); Herefordshire (1908); Lancashire (1906); Worcestershire (1901); Yorkshire (1907) and Somerset (1906).

## Albarracin and Vicinity, Spain, in July 1973

By JOHN and MARGARET DACIE

10 Alan Road, Wimbledon, London, SW19

and JACK and DOROTHY GREENWOOD

The Thatches, Forest Road, Pyrford, Woking, Surrey

The following is an account of a 2-week entomological holiday spent in Spain in the regions of the Sierra de Albarracin and Valencia between 20th July and 3rd August 1973. We flew from Heathrow to Valencia, collected two hired cars at Valencia airport and then drove via the City — in which we found it only too easy to get lost — up the coastal road to Sagunto and thence inland on a metalled road with many hairpin bends in a N.W. direction to Teruel (elev. 916 m) where we stayed at the excellent Parador Hotel, situated in pine woods just beyond the town on the Zaragoza road, in all a 150 km drive. The bedrooms and public rooms were excellent, the meals attractive and well served, the staff cheerful and most helpful. Albarracin (elev. 1182 m) is about 25 km W.

of Teruel on a minor road and we spent the next 7 days collecting mainly in the mountains to the W. of Albarracin, up to an elevation of 1855 m. Except for a storm on our last night in Teruel the weather was almost uniformly fine and hot.

The first village reached on the Albarracin road is Gea de Albarracin; beyond this the road climbs up through a rocky valley, and on the 21st July we collected on uncultivated rocky ground between the roadside and a stream about 5 km above the village. Butterflies were plentiful and pale *L. albicans arragonensis* were particularly conspicuous, being mainly males in fine condition. More than 40 species were caught or noted in this area. *M. daphnis* was not uncommon and one dark female was netted as well as several males.

On the 22nd July we drove further, past Albarracin to Noguera, resisting the temptation to stop and collect at likely places en route; at Noguera we took the road to the right and climbed the steep ascent towards Bronchales. Just before the summit we stopped at a bend in the road where there was a damp area and an abundance of flowers and there we saw for the first time *P. apollo* and *B. hecate*. About 1 km further up the road, near the summit, the countryside opened out into flowery meadows between pine forests, and in this area *H. semele* and *H. alcyone* were abundant and we took *M. russiae cleanthe* also. Then, turning left before actually reaching Bronchales, we drove along the road to Greigos until we reached clearings in the pine forests and ultimately well watered open meadows. It was in this area that we found in abundance *L. coelestissima* in fresh condition but only males. *A. damon* and *A. fabressei* were flying, too, but in lesser numbers. On the way back to Teruel we walked up a dry river bed near Albarracin and found *C. priouri* and *S. actea* both in fresh condition and almost all males. *S. actea* we later found to be widespread in dry rocky localities but *C. priouri* we found only in this single locality.

On the 23rd July we drove via Albarracin to near the village of Moscardon. This is an upland area of flowery slopes and pine forests, with a stream dammed to give ponds, where cattle were watered. Butterflies were generally abundant, particularly the satyrids, *M. galathea lachesis*, *H. semele*, *H. alcyone* and *B. circe*, with lesser numbers of *M. russiae cleanthe*. In one area *C. iphioides* was plentiful in fine condition and we found for the first time a few male *A. arethusa*, and quite numerous *H. lycaon*, again almost all males. *B. hecate* was the commonest fritillary and it was flying in the company of *B. ino* and a few *M. parthenoides*.

On the 24th July, another brilliant and hot day, we revisited several dry river valleys between the Gea de Albarracin and Albarracin and this time in addition to *H. semele*, *H. alcyone*, *C. briseis*, *C. priouri* and *S. actea* we came across a colony of *P. fidia* in fresh condition. Then we drove once more to Moscardon. Butterflies were abundant as before: *L. coelestissima* were plentiful on open grassy slopes and *A.*

*arethusa* appeared more abundant and were presumably just emerging.

On the 25th July we explored an area south of Albarracin. This proved to be on the whole less productive: the terrain was less mountainous and more arid and was partly cultivated and no particularly interesting or "new" species were noted. On the 26th July we paid a return visit to the mountains above Noguera and Griegos and spent most of the day looking in likely clearings in the pine forests for *E. zapateri*, but none was found. Butterflies were, however, generally abundant and many *P. apollo* were seen. Three "new" species were noted: *P. napi*, in one locality only, and a single female *H. alcipron* and one male *P. nivescens*.

On the 27th July it was cloudy in the morning and we explored the pine-covered heathland in the vicinity of the hotel. Several fresh male *H. statilinus* were caught and two *P. calbum*. On the 28th July we made our final trip to the mountains beyond Albarracin, visiting the locality between Noguera and Bronchales where we had stopped on the 22nd July. This time we found a small colony of *L. nivescens* at the margin of a pine forest and in the same area one *N. polychloros* was caught, the only one seen in the whole trip. In the afternoon we re-visited the Moscardon area and caught two more *P. nivescens* and also two *M. daphnis*, one a brown female. There was still no sign of *E. zapateri* and we concluded that the species had not yet emerged.

On the 29th July we left Teruel and drove towards Valencia. We stayed at a hotel on Monte Picayo which rises steeply from the narrow coastal plain approximately 21 km north of the city. This is a new hotel, modern and expensive in contrast to the very reasonable charges of the Parador but beautifully situated on the hillside with spectacular views over the plain to the sea. About two-thirds of the way from Teruel to Segorbe en route to the coast the road descends through a steep escarpment. We halted here and collected briefly at its base on the way to the small town of Pina in a rather dry area of heathland and pine trees. *P. fidia* was quite common as were female *S. actaea*, but *L. albicans arragonensis* was probably the most common of the dozen or so species flying. In this area, as well as in Teruel we were struck by the many signs of the fierce fighting in the civil war 35 years ago.

On the 30th July we explored the neighbourhood of Monte Picayo and spent most of our time walking up the road which wound through rather arid pine-covered hills above the Monastery Sancti-Spiritu. This appeared to be an area of natural forest but some of it was being developed and houses built. About 20 species of butterflies were noted. *P. fidia* was common and some females were seen, but *H. statilinus*, although present, was less frequent. A few almost fresh *E. tages* were seen, presumably members of a second brood.



On the 31st July we drove up the Teruel road and explored a valley running North near Segorbe where a river had been dammed. About 22 species were noted in this area including *L. bellargus* and *P. malvoides* neither of which we had seen previously, and we were rather surprised to catch a single male *P. nivescens* at this relatively low altitude (approx. 360 m).

On the 1st August we again drove towards Segorbe but this time we branched North up the Vall de Uxo road before reaching Segorbe. On rough ground near Azuebar we found *H. statilinus* to be common and we noticed a single rather worn *L. bellargus*. We left the Vall de Uxo road, and drove via Azuebar and Chovar towards Eslida, the road climbing and twisting steeply through wooded hills. About 3 km beyond Chovar the road crosses a stream and following a track winding up a narrow valley we came across for the first time *Q. quercus ibericus* in quite large numbers flying around the tops of cork oak trees, and in the same area *C. argiolus*. By the roadside in this area we saw several *P. pandora*, again for the first time.

On the 2nd August we drove south to Valencia and then inland to the small town of Pedralva, finally taking a bye-road North which led us eventually to Segorbe on the Teruel road. The countryside varied from agricultural to wild rocky hills and pine-covered heathland, and we collected at several likely places. By the riverside at Pedralva we found *Z. knysna* and *S. pirithous* in quite large numbers flying low over lush vegetation, but in rather poor condition. (One *Z. knysna* had been caught in a damp place just below the hotel on Monte Picayo the previous evening.) These captures suggest that *Z. knysna* extends further North up the Mediterranean littoral than had been thought. Finally, on our way back to the hotel we called in briefly, rather late in the afternoon, at the place where we had seen *Q. quercus ibericus* and *P. pandora* the previous day. Several more of these species were seen as well as *M. didyma* in fresh condition. The following day we returned to London after a thoroughly enjoyable and successful trip.

In all 95 species of butterfly were noted. Moths were not numerous, in spite of regular inspections of the hotel lights, and relatively few were disturbed during the day. The entire area was very sparsely populated so that for hours at a time we saw no other human beings apart from light traffic on the roads. On one occasion two other collectors were seen in the Albarracin area but were not near enough to speak to them.

We are most grateful to Dr Lionel Higgins, Lt.-Colonel and Mrs Manley and Baron Charles de Worms for much helpful advice.

## LIST OF SPECIES CAUGHT BETWEEN 21st JULY AND 2nd AUGUST 1973

Papilionidae (3 species): *Papilio machaon* L., a few only, scattered. *Iphiclides podalirius* Dup., widespread, but not common. *Parnassius apollo* L., plentiful in the Sierra de Albarracín.

Pieridae (10 species): *Pieris brassicae* L., a few only seen, near Valencia. *P. rapae* L., widespread and common. *P. napi* L., a few only in one locality near Noguera. The form is closely similar to, if not identical with, *dubiosa* Röber; and the black spot in S3 in the male is unusually large. *Pontia daplidice* L., widespread and quite common. *Aporia crataegi* L., a few only, near Albarracín. *Colias crocea* Geoffroy, widespread and often common; many f. *helice*. *C. australis* Verity, widespread and quite common. *Gonepteryx rhamni* L., widespread but not common. *G. cleopatra europaea* Verity, widespread but not common. *Leptidea sinapis* L., widespread but not common.

Nymphalidae (19 species): *Limenitis reducta* Staudinger, scarce, in the Sierra de Albarracín. *Nymphalis polychloros* L., one only, in Sierra de Albarracín. *Inachis io* L., scarce. *Vanessa atalanta* L., scarce. *V. cardui*, widespread and quite common. *Aglais urticae* L., common in the Albarracín area. *Polygonia c-album* L., a few only, scattered. *Pandoriana pandora* D. & S., one locality only, near Segorbe. *Argynnis paphia* L., widespread in the Albarracín area. *Mesoacidalia aglaja* L., widespread and often common in the Albarracín area. *Fabriciana adippe chlorodippe* H.-S., often common in the Albarracín area. *F. niobe* f. *eris* Meigen, one only, near Noguera. *Issoria lathonia* L., widespread in hills. *Brenthis hecate* D. & S., common in colonies in the Sierra de Albarracín. *B. ino* Rott., common in Sierra de Albarracín, often flying with *B. hecate*. *Melitaea phoebe* D. & S., a few worn specimens in Sierra de Albarracín. *M. didyma occidentalis* Staudinger, fairly common and widespread near Valencia. *Mellicta deione* Geyer, only one, near Segorbe. *M. parthenoides* Keferstein, scattered in Sierra de Albarracín, mostly worn.

Satyridae (23 species): *Melanargia galathea lachesis* Hb., generally common in Albarracín area. *M. russiae cleanthe* Boisd., quite common in Sierra de Albarracín. *Hipparchia alcyone* D. & S., common and widespread. *H. semele cadmus* Frühst., common and widespread. *H. statilius* Hufn., widely distributed but not on the whole common. *Pseudotergumia fidia* L., widely distributed and locally quite common. *Chazara briseis* L., locally common in the Albarracín area. *C. priouri* Pierret, one locality only near Albarracín. *Satyrus actea* Esp., quite common in the Albarracín area. *Brintesia circe* F., locally common in the Albarracín area. *Arethusana arethusia* D. & S., local in Sierra de Albarracín. *Maniola jurtina hispulla* Esp., widespread and common. *Hyponephele lycaon* Kuehn, widespread in Albarracín area. *Pyronia tithonus* L., widespread and common. *P. cecilia* Vallantin, locally common in

dry places. *P. bathseba pardilloi* Sagarra, widespread but worn. *Coenonympha pamphilus* L., scarce. *C. dorus* Esp., widespread and quite common but worn. *C. arcania* L., a few only in Sierra de Albarracin, worn. *C. iphioides* Staudinger, locally common in Sierra de Albarracin. *Pararge aegeria aegeria* L., widespread; common by hotel at Monte Picayo. *Lasionhata megeda* L., widespread, but not common, worn. *L. maera* L., few only in Sierra de Albarracin, worn.

Lycaenidae (25 species): *Quercusia quercus ibericas* Staudinger, one locality only, near Segorbe. *Nordmannia ilicis* Esp., common in the Albarracin area but worn. *N. esculi* Hb., probably common in Albarracin area but worn. *Strymonidia spini* D. & S., scattered in Albarracin area; a few fresh. *Lycaena phlaeas* L., widespread but scarce. *Heodes al-ciphron* Rott., scarce in the Sierra de Albarracin. *Lampides boeticus* L., widespread but not common. *Syntarucus pirithous* L., near Valencia, locally common. *Zizeeria knysna* Trimen, at Monte Picayo and near Pedralva. *Celastrina argiolus* L., near Segorbe and at Monte Picayo. *Plebejus argus* L., few, Sierra de Albarracin. *Lycaeides idas* L., few, Sierra de Albarracin. *Aricia cramera* Eschscholtz, widespread. *A. allous montensis* Verity, widespread and quite common in Sierra de Albarracin. *Cyaniris semiargus* Rott., near Albarracin, few only. *Agrodiaetus damon* D. & S., locally quite common in Sierra de Albarracin. *A. fabressei* Oberthür, widespread in Albarracin area. *Plebicula escheri* Hb., few in Sierra de Albarracin. *P. nivescens* Keferstein, scarce in Sierra de Albarracin: one near Segorbe at lower altitude. *P. thersites* Cantener, widespread and locally common. *Meleageria daphnis* D. & S., two colonies in Albarracin area. *Lysandra albicans arragonensis* Gerhard, widespread and often common in Albarracin area, and also near Valencia. *L. caelestissima* Verity, locally plentiful in Sierra de Albarracin. *L. caelestissima caerulescens* Tutt, scarce in Sierra de Albarracin. *L. bellargus* Rott., two small colonies near Segorbe. *Polyommatus icarus* Rott., widespread and often common.

Hesperiidae (15 species): *Pyrgus malvae malvoides* Elwes & Edwards few only, near Segorbe and Valencia. *P. serratulae* Rambur, one only Sierra de Albarracin. *P. cirsii* Rambur, widely distributed in the Albarracin area. *P. onopordi* Rambur, scarce in the Albarracin area. *P. fritillarius* Poda, scattered in the Albarracin area. *Spialia sertorius sertorius* Hoffmannsegg, widely distributed and quite common worn. *Muschampia proto* Ochs., widely distributed and quite common. *Carcharodus alceae* Esp., widely distributed but not common. *C. lavatherae* Esp., one only, near Teruel. *C. boeticus* Rambur, quite common, Albarracin area and near Teruel. *Erynnis tages* L., a few near Valencia, quite fresh. *Thymelicus actaeon* Rott. widespread but not common. *T. sylvestris* Poda, widespread. *Hesperia comma* L., scattered in Sierra de Albarracin. *Ochlodes venatus faunus* Turati, widespread but not common.



## 1973—A Remarkable Year

By B. GOATER

22 Reddings Avenue, Bushey, Herts

Reading over some back numbers of the *Record*, I came across an article written twenty years ago by the late Mr P. B. M. Allan when he was Assistant Editor of this magazine, exhorting entomologists to submit more 'Collecting Notes'. This has roused me to look back on 1973, a year during which I made personal acquaintance for the first time with twenty of our macrolepidoptera, and which therefore ranks as an outstanding one. Perhaps my success reflects a slothful lack of effort in the past, plus good fortune beyond average, but I like to believe that the quarry was about in good numbers, and I did visit several places where I had not been before.

Mr Austin Richardson and I saw the New Year in on Islay, and observed that the well wooded south-east corner of the island might richly repay an entomological visitor during the summer months. This is an area of extensive bog containing *Myrica*, out from which arise long strips of rocky outcrop which are clothed with oak, hazel, birch and alder, themselves festooned with lichens. We resolved to return at a more propitious season.

The first moths of the year were seen at Elstree, Herts., on January 25th—males of *Theria rupicapraria* (D. & S.) and *Apocheima pilosaria* (D. & S.). Their appearance coincided with some mild weather. Nothing else was seen until February 21st, when males of *Alsophila aescularia* (D. & S.) were out in force. However, during the intervening period my mother obtained two small larvae of *Helicoverpa armigera* (Hübner) from the local greengrocer at Chandlers Ford, Hants. They were in tomatoes from the Canary Is., and duly pupated in sand in the airing cupboard. One emerged in due course, but the other died after forming up, when I took it out of the heat into an ordinary warm room. Late in February I brought into the warm a lot of pupae of *Orthosia miniosa* (D. & S.), and sprayed them. Within four days, the moths began to emerge in a rush. The eggs had been obtained in 1972 from a Welsh female, and the young larvae started off on bursting oak buds in Herts. At the beginning of Whit-week, they were about half grown, and the local oak leaves were beginning to coarsen, but I took them to Scotland with me, and there the buds were just opening. I was able to finish them off on this pabulum, and bred fine full-sized moths. During this same visit to Wales, I obtained eggs from a female *O. gracilis* (D. & S.) from Borth Bog. These larvae developed virus disease; the five pupae I got were given the same treatment as the *miniosa*, and also emerged at the same time, but produced miserable little specimens.

The local *Orthosia* species were on the wing on March 19th, and on the same day. numerous cocoons of *Pammene*



*regiana* (Zell.) were found under the bark of old sycamores on Stanmore Common, Middx. The first moth emerged on April 15th.

The first major entomological foray of the year was for *Eupithecia irriguata* (Hübner) in the New Forest, and such was the state of the season that I judged it would be out by April 20th. Unfortunately, the weather turned unpredictable at that time, with rain, cold nights and unpleasant wind. Several days and nights were spent among the great oaks, but I succeeded in finding only one specimen, in heavy rain, resting under the bough of a yew, on May 6th. During the same period, search was made for larvae of *Chloroclystis chloerata* (Mab.). Singletons were beaten from blackthorn flowers in two new localities in South Hants and the moths bred, but the peculiar weather conditions (sleet on April 22nd!) had resulted in some bushes being over, others held back, and only a few in good condition for the larvae, which must feed up very quickly indeed. Visits to a row of ash trees by the River Itchen at Shawford at dusk resulted in several larvae of *Atethmia centrigo* (Haw.). I collected many fallen cones of spruce from which *Cydia strobilella* (Linn.) emerged in quantity during May, but had no luck with pine cones collected in the New Forest for *C. conicolana* (Heyl.), though there were old cones with emergence holes in the bracts lying on the ground nearby.

During May, moths were coming out in quantity in the breeding boxes, including several *Trisateles emortualis* (D. & S.). The larvae had been beaten the previous autumn from dead beech leaves, and had pupated in flimsy cocoons among the leaves. I was also pleased to see numbers of *Eupithecia valerianata* (Hübner). I had taken a worn moth on the shore of Loch Insh, Inverness-shire, the previous summer, and later found larvae in some plenty extremely locally. I had forebodings about parasites which thankfully proved unfounded.

On May 25th, I set out for Scotland again. On the way, I failed to find larvae of *Orgyia recens* (Hübner), and had my first sight of the country round Grassington. There was only time for a quick walk before nightfall, amply rewarded by the sight of masses of *Primula farinosa* Linn. in flower. We drove on through the night and reached Callander in the small hours in rain. Nevertheless, in our tent we were warm, dry and full of anticipation of good things to come. Next morning, we were off up into the hills near Killin to search for larvae of *Entephria flavicinctata* (Hübner), and found about twenty, all sizes and very procryptic resting on the brown shoots just below the fresh green growth of the current year. They fed well on cultivated *Saxifraga*, but all save four were parasitised.

Every entomologist will tell you of his *bête noir* — the species he cannot find. One of mine is *Paradiarsia sobrina*

(Dup.), and I failed again at Aviemore in 1973, in spite of kindly efforts by a number of friends to 'put me right'. *Anarta cordigera* (Thunb.) was well out, and I took a very black specimen and a female with yellowish stigmata. *Acronicta myricae* (Guen.) seems to have recovered well from a period of comparative scarcity, and several were found resting on rocks over the whole area, and also at Braemar. On two occasions, two were found on one rock, and a cocoon was found from which a moth emerged a few days later. The days spent at Aviemore were sunny and warm, and many tortricids were flying by day, including *Olethreutes mygin-dana* (D. & S.) amongst *Arctostaphylos* along the railway on Granish Moor, *Ancylis uncella* (D. & S.) and *A. unguicella* (Linn.). The large resinous galls of *Petrova resinella* (Linn.) were common on small pines near Loch Vaa, but this year no moths were bred from them. On May 28th, we ascended on to the high ground above Glen Feshie and rummaged under the reindeer moss for pupae of *Psodos coracina* (Esp.), finding many, and also larvae ready for pupation. Unfortunately their period of emergence came over a heat wave which caused many to dry up and others to emerge deformed, especially the males.

On the following day we moved on to Braemar, and on 30th, having obtained the necessary permission, I went up the mountain to look for larvae of *Zygaena exulans subochracea* White. After some time, I began to find the larvae on patches of *Empetrum* on the tops, locally. Most were well grown and, though easy enough to see once 'spotted', were surprisingly easily overlooked, in spite of their olive black colouration and row of bright yellow spots down each side. Disaster struck again, this time in the shape of mites. The larvae reached maturity satisfactorily, finishing their growth on *Lotus*, then failed to make any but the flimsiest cocoons from which they fell on to the damp lichens I had collected from their habitat. Rather to my surprise, they then pupated successfully, but later I noticed the pupae going flat and found them covered with small mites which had sucked them dry. Only one moth emerged.

We then moved south by stages, birdwatching on the way, to the Lincolnshire coast where the objective was *Athetis pallustris* (Hübner.), arriving on a 'typical' *pallustris* evening—wet and horrible. I stayed up all night while my ornithological friend slept, and caught a few moths, but no *pallustris*. The next day was warm and sunny, and we explored the neighbourhood. I noticed masses of *Cerastium arvense* Linn. growing on the dunes, and immediately thought of *Eupithecia pygmaeata* (Hübner.), another moth I had never taken. In a short time I saw what was certainly this species flying over a clump of the plant, but missed it. Later, though, I gained the knack of walking very slowly among the massed flowers and striking at any small brown moth that moved.

thus collecting a fine series of both sexes in beautiful condition (and confounding a cherished belief that all pugs are unrecognisable, unless bred!). They seemed to fly all day in the sunshine, and could often be seen with probosces inserted into the *Cerastium* flowers. Incidentally, the books give *Stellaria holostea* Linn. as the foodplant. The flowers of this and the *Cerastium* are rather alike, but surely the *Stellaria* flowers are well over by the time *pygmaeata* larvae would be around, whereas the *Cerastium* goes on flowering all through the summer. I believe the two plants were confused in the past, and the mistake handed on through the literature, but am prepared to stand corrected by anyone who has found the larva on *Stellaria holostea*.

The next night, June 1st, I set up my little actinic on the edge of a patch of meadowsweet, and at 2355, a slightly rubbed male *pallustris* came in. At 0145, a second, immaculate fluttered on the sheet and was boxed, and then exactly an hour later a third specimen. This was fresh, but of a pale straw colour and quite unmarked; it was spoilt by having both antennae broken off short. Mr Peter Rogers, nearby with two m.v.'s and an actinic, got none, nor did anyone the following night in apparently similar conditions — still, clear and cool. There is still so much to be learned of the habits of this mystery moth.

The next excursion of any consequence was in the company of Mr Bernard Skinner, who kindly took me to a locality in south London for one of my 'missing' clearwings, *Conopia myopaeformis* (Borkh.). One battered looking apple tree, evidently the product of a spat-out pip years ago, was full of the early stages of this insect, and between us we eased out several of the tough cocoons from under the bark, containing either larvae or pupae. We saw one fresh pupa case sticking out from a cleft of bark. My first moth emerged two days later, on 9th June, and others followed over about a month, though some perished on account of the heatwave to which reference has already been made. Some other pupae collected at the same time yielded *Enarmonia formosana* (Scop.) and a melanic *Chloroclystis rectangulata* (Linn.).

About this date I was investigating a promising-looking larch wood and adjacent ground very close to the M.1 as it skirts Watford. I had already taken a few *Eupithecia lariciata* (Freyer) there, including melanics. and on June 8th, I was delighted to discover a flourishing colony of *Hepialus fusconebulosa* (Deg.) taking subsequently both sexes in three distinct forms. It was necessary to set the actinic going before dusk in order to get them. Three other species of *Hepialus* were present in the same ride, and I feel sure that the fifth species, *sylvina* (Linn.) would be there later in the year. On June 25th, I had another pleasant surprise, namely that *Ptycholomoides aeriferanus* (H.-S.) was common in the same wood.

Meanwhile, on June 17th, I was on part of Stanmore Common with the family and, as ever, cast an eye over the bases of



some willows for signs of *Sphecia bembeciformis* (Hübner). Immediately I saw a capped exit hole just like one that Bernard Skinner had shown me a few days earlier. After lunch, I returned with a saw and cut down seven small stems, about the thickness of one's wrist, all containing one or more visible capped burrows. To my agreeable surprise, these stems produced 35 moths in the first week of July. They all emerged before 0700, and by breakfast time were buzzing noisily about in the aquarium tank in which the stumps had been placed, and which stood in a sunny window in the dining room. The one exception to this pattern was interesting. On one of the days during the emergence, I lifted out a stump to examine more closely the empty pupa cases, and discovered an extruded one poking from the cut bottom of the stump into the sand. It must have been there all day, and it was now late in the afternoon. As soon as the pupa was freed from its position, the moth, a large female, emerged and dried its wings perfectly. I ended up with many more moths than I required, so released several pairs on the bases of willows where I knew the species to be absent, in the hope of finding out something about the life span.

My parents-in-law moved early in the year to East Dean, near Eastbourne, to a very likely-looking place overlooking Birling Gap. This spot will figure in the narrative later, but my first visit was made with the family, on the weekend of 23rd June. We managed a little preliminary entomological exploration, and while sweeping larvae of *Eremobia ochroleuca* (D. & S.) in abundance from flowering *Dactylis*, I chanced on a forester which turned out to be *Adscita globulariae* (Hübner). I could find no more, and reckoned I was too early. There was plenty of the greater knapweed about.

On June 28th, I went with Mr David Agassiz and Dr Ian Watkinson to the north Kent coast. We could find no *Idaea vulpinaria* (H.-S.) and were probably too early; on the other hand, we were almost too late for larvae of *Malacosoma castrensis* (Linn.), and found only about half a dozen between us. Afterwards, we went down to Hamstreet woods. The night became rather cold; I collected a number of variable *Pseudosciaphila brandariana* (Linn.) and one *Acyliis laetana* (F.) at m.v. light, Ian got a fresh *Moma alpium* (Osb.), but there was little else of note.

Next day, the family and I went off to the Wye Valley for the weekend, arriving before dusk in beautiful, mild conditions. We got the youngsters into their tent and set up the actinic tube under the limes, and were joined by Mr Brian West with m.v. equipment. The main objective, *Palaeodrepana harpagula* (Esp.), was just emerging, and I had twelve perfect males at the tube between 2300 and 0100. I was pleased also with several *Hydrelia sylvata* (D. & S.), three *Salebriopsis albicilla* (H.-S.) and several *Ephestia parasitella* Staud. besides seeing a large number of other characteristic species of this interesting region. The following night I was joined by Dr



Michael Harper, when between us we saw at least 30 *harpagula*, all males, more *sylvata* (D. & S.), single *Autographa bractea* (D. & S.), female *Selenia lunularia* (Hübner) and one more *albicilla*. I kept one of the several female *Anaplectoides prasina* (D. & S.) which came to the light, and had obtained many eggs by morning, from which large numbers of moths were bred at the end of the year. On July 1st, we all went up to Ledbury to spend the day with Michael and his family. The fine, sunny weather persisted, and in the morning we went to a local quarry where we found several very fresh *Bembecia scopigera* (Scop.). The first, which was a minute male, was swept, but later we netted four more, two of which were females, flying over a steep bank which was covered with *Lotus*. We found several *Eupithecia tenuiata* (Hübner), freshly emerged, at rest on posts and stumps under some large willow bushes.

During the following period, numbers of *Eupithecia trisignaria* H.S. emerged *ex larvis* collected the previous autumn from heads of *Angelica* in Wicken Fen. The moths were even duller and more nondescript than some bred in 1972 from Ledbury.

On July 6th, I made my first ever visit to the Lake District, meeting Mr Geoff. Senior at Beetham in the evening. I was a little early for the *rendezvous*, so amused myself by pottering about the district in fine drizzle, finding numerous *Eudonia crataegella* (Hübner) on an old limestone wall. The night was rainy, and we carried our batteries and actinics far up into the limestone woods to a locality for *Perizoma taeniatum* (Steph.), arriving after dark, hot, disagreeable and sweaty. We got no *taeniatum*, and lugged everything, slipping and swearing, back down to the car. Back at Mr Jerry Brigg's home we were made welcome, and fished two *taeniatum* out of his trap, one ruined by water. I was particularly delighted to meet Jerry again, for we met about 20 years ago, in the New Forest, and had corresponded intermittently since. He was just as I had remembered him, though I doubt he could say the same of me.

The following day was much brighter, and the three of us went down to Leighton Moss Nature Reserve, where Jerry runs a trap and maintains the Lepidoptera records. We talked birds with the Warden, and collected a nice *Catoptria falsella* (D. & S.), a crambid I do not see very often, several *bractea* and *Abrostola trigemina* (Werne.). Afterwards, Geoff and I went up on to Arncliffe Knott, where we hoped for yet another new species, *Photodes captiuncula* (Treits.). We found it at once, though not very commonly, and were able to take a short series of very fresh examples. We discovered its exasperating habit of flying off, quite slowly, through thickets of young sycamore saplings in which it was impossible to wield a net effectively, and we missed more

(To be continued)

## Editorial

On behalf of all our subscribers we wish to express our appreciation and thanks to Mr and Mrs Redgrave on their retirement for having so ably run the finances of the *Record* for some years now, and to welcome our new Treasurer, Mr P. J. Renshaw.

Dr Ian Watkinson who is going to live abroad has had to relinquish his position as Publicity Officer. We take this opportunity to heartily thank him for his past services and to extend a welcome to Mr E. H. Wild his successor.

---

## Notes and Observations

VICE AMONG THE VANESSIDS. — I was on a coastal hillside near Plymouth, 16th April 1974, when I observed a worn *Aglais urticae* which I assumed to be a male and whose unusual behaviour attracted my curiosity. It was flying in close and persistent pursuit of a solitary *Inachis io* over a small bed of nettles. When the *I. io* eventually settled, the *urticae* settled alongside and began to tap it with the tips of its antennae. The *io* remained stationary for about five minutes with its wings closed. Strangely the *urticae* was not deflected from its purpose by another of its own species flying around the bed. Eventually the tapping grew more intense so that it became audible and the *io* became restive. The *urticae* then moved round to behind the *io* and tapped it on the edge of its closed wings. The *io* then began to open its wings for about ten seconds at a time, allowing itself to be tapped on the upper-side and on the slightly raised abdomen. From the shape of the abdomen, it seemed to be a male. Both butterflies seemed to be excited and engrossed by this activity which continued for at least another five minutes. Then the *io* flew about a yard away with the *urticae* again in close pursuit and took shelter behind a large dock leaf. I waited for another minute or so, but neither butterfly reappeared and I took it that the remainder of the proceedings were not for my eyes, so I went on my way.

I should be interested to know if there are similar observations on record, and whether anyone can explain this as anything other than perverted courtship behaviour.—PAUL JEFFERY, 1 Badminton Close, Harrow, Middlesex.

INACHIS IO L. AB. DYOPHTALMICA GARB. NEAR HAILSHAM, SUSSEX.—On 8th August 1973, I noted a number of *Inachis io* L. in a thin belt of deciduous trees and heathland surrounding one of the Forestry Commission's plantations near Hailsham. Of 10 specimens examined all possessed the small blue spot below the ocellus characteristic of ab. *dyophtalmica* Garb., and it would seem that the entire colony was of this form.—I. C. BEAVIS, 104 St. James Road, Tunbridge Wells, Kent.

NOTES ON A COLONY OF HESPERIIDAE AT TUNBRIDGE WELLS, KENT. — In July of last year I noted that in a small isolated colony of HesperIIDae in a built-up area of Tunbridge Wells, *Thymelicus lineola* Ochs. was by far the dominant species. Out of 18 specimens examined the numbers of each species present were as follows:—16 *T. lineola* Ochs., 1 *T. sylvestris* Poda, 1 *Ochlodes venata* Brem. & Grey.—I. C. BEAVIS, 104 St James Road, Tunbridge Wells, Kent.

ODONTOSIA CARMELITA ESP. AT TUNBRIDGE WELLS, KENT.—On the night of 21st April, while inspecting the m.v. trap in my garden which is in a built-up area, I took a male specimen of *Odontosia carmelita* Esp. on a door illuminated by the trap. Apparently this is the first record for division 13 of Kent (cf. Chalmers-Hunt, *The Butterflies and Moths of Kent.*, vol. 2).—I. C. BEAVIS, 104 St. James Road, Tunbridge Wells, Kent.

THE BEDSTRAW HAWK (HYLES GALLII ROTT.) IN 1974.—Whilst "dusking" in my garden at Batheaston, near Bath, at approximately 10.15 p.m. on 13th June 1974 I chanced upon *Hyles gallii* Rott. The moth which was fresh was feeding from the white variety of Sweet Rocket.—BRYAN W. MOORE, Church Cottage, Batheaston, Bath.

CRYPHIA MURALIS (FORSTER) IN WILTSHIRE.—This moth came to my m.v. trap here on 5.viii.1969(1), 20.viii.1972(1) and singly on 1, 2, 13.viii.1973. The specimen taken in 1972 appears referable to f. *impar* Warren. Barrett (1960, *The Lepidoptera of the British Isles*, 6: 209) gives Chippenham as one of the localities for *Cryphia muralis*, so the species would appear to have been established here for many years. It is, however, according to de Worms (*The Macrolepidoptera of Wiltshire*, p. 86) a species of "very rare occurrence in the County". — P. M. HEATH, 145 Malmesbury Road, Chippenham, Wiltshire.

PHILEREME TRANSVERSATA HUFN. (LEP.: GEOMETRIDAE) IN IRELAND. — From a full-grown larva that I took feeding on *Rhamnus catharticus* at Rinnamona, Co. Clare, on 29th May 1974, a female *Philereme transversata* Hufn. (Dark Umber) emerged today. I think this is only the second Irish *transversata* on record (cf. Baynes, *Suppl. Revised Cat. Irish Macrolepidoptera*, 17).—J. M. CHALMERS-HUNT, 26.vi.1974.

DISTRIBUTION OF SOME GRECIAN BUTTERFLIES. — *The Field Guide to the Butterflies of Britain and Europe* of Higgins and Riley is no doubt part of the luggage of many entomologists on their journeys abroad, even if they are not especially interested in Lepidoptera. This explains why I got a letter from the Dutch orthopterist Dr. F. Willemse in which he informed me of two interesting captures of butterflies for the Grecian fauna.

1. *Charaxas jasius* L. Creta, Lakki, 450 m, 25 km south of Chania, two specimens on 3 August 1973. On map 53 of the Field Guide the island is not yet indicated as belonging to the distribution area of the species. It can be blackened now in the next edition.

2. *Pseudochazara mamurra graeca* Stgr. On Mount Ori, Itri Ori, south-west of Lamia, near the refuge above Ypati, 1800-1900 m, 5-7 August 1972, one specimen. The mountain lies half way between the Parnassus and the Tymfristos and according to Dr. Willemse is very interesting, because it harbours both the Orthoptera occurring on the Parnassus and those of the Tymfristos. It now appears that this also holds good for *P. mamurra*.—B. J. LEMPKE, Oude Yselstraat. 12.iii, Amsterdam 1010, Holland.

TRICHOPTERYX CARPINATA BORKH. ATTRACTED TO BISTON STRATARIA HUFN.—During 1973 I bred some *Biston strataria* of which 75 were females which I was able to use in the spring of 1974 over a period in an assembling trap. In addition to male *strataria* attracted, I found a male *Trichopteryx carpinata* in the trap on the morning of 25th March. and others on 27th and 28th. Dr. Kettlewell, who has carried out much work on assembling tells me that he has not previously heard of the association of these particular species and considers that this record should be published. (see 1955, E. B. Ford, *Moths*; H. B. D. Kettlewell, Female Assembling Scents, *Entomologist*, 79: 8-14, and 1973, *Evolution of Melanism*).

It is interesting to note that only one specimen of *carpinata* came to the M.V. light trap during the same period 150 yards away. This was on 8th April.

The males of the species referred to at the references quoted have well pectinated antennae, whereas *carpinata* has no pectination. — L. W. SIGGS, Sungate, Football Green, Minstead, Lyndhurst, Hants.

MACROGLOSSUM STELLATARUM L., PLUSIA GAMMA L., AND OTHER MIGRANTS IN SOUTH DEVON AND THE LIZARD.—It seems of interest to report the sudden arrival of several common migrant species on the south-west coast in late June. This began on the evening of 22nd June when we had Silver-Y's coming to our static trap in quantity. It was plugged in at the Mullion Cove Hotel overlooking a steep cliff. Up to this date this insect had been absent but for the next few nights it seemed to flood the trap. *Agrotis ypsilon* Hufn. and *Peridroma porphy-*



rea D. & S. were also in small numbers with a few *Nomophila noctuella* D. & S. These species also persisted at Hope Cove near Salcombe where Mr Messenger saw a Humming-bird Hawk flying over valerian on the morning of 28th June.—C. G. M. DE WORMS, Three Oaks, Shores Road, Horsell, Woking, Surrey. 2.vii.1974.

SOME UNUSUAL DATES AT HORSELL DURING MAY AND EARLY JUNE 1974—The remarkably fine and warm spell which ushered in the latter half of May seems to have brought out species in some instances several weeks earlier than I normally see them in my m.v. trap here. I have therefore thought it of interest to enumerate these somewhat early records. May 18: *Tethea ocularis* L., *Eupithecia arceuthata* Mab.; May 20: *Apatele alni* L., *Semiothisa liturata* Clerck; May 30: *Hadena suasa* D. & S., *Phalera bucephala* L.; June 1: *Noctua pronuba* L.; June 2: *Apatele leporina* L., *Mysticoptera sexalisata* Retz., *Hydrelia flammeolaria* Hufn.; June 3: *Alcis repandata* L.; June 8: *Hepialus humuli* L.—C. G. M. DE WORMS, Three Oaks, Horsell, Surrey.

DISCOLOXIA BLOMERI CURT. IN HAMPSHIRE.—On the night of 14th June 1974 I took a male *D. blomeri* in my M.V. trap here. I understand from Mr Barry Goater that this is a new county record for Hampshire.—L. W. SIGGS, Sungate, Football Green, Minstead, Lyndhurst, Hants.

A TETRATOLOGICAL BROOD OF LARVAE OF DANAUS CHRYSIPPUS L. (LEP.: DANAIIDAE).—A small brood of eighteen larvae reared *ab ovo* contained no fewer than four larvae with structural abnormalities. One larva had an additional pair of tentaculæ on the 6th somite, slightly smaller than the normal pair on the 5th, another had one additional tentacula on the right hand side of the 6th somite, and two had small black points in the centre of the subdorsal spot on the 6th somite, one on the right side and one on the left.

This is the third occasion when I have reared a brood of larvae containing more than one structural abnormality. The other occasions were a brood of *Leucania irregularis* Wlk. (Noctuidae) (1948, *Entomologist*, **81**: 38) and a brood of *Euxanthe wakefieldi* Ward (Nymphalidae) (1965, *Entomologist*, **90**: 107), both instances of spiral segmentation.

It is also the second occasion that I have reared a larva of *chrysippus* with additional tentaculæ; a larva reared in Calcutta had a complete set of tentaculæ on the left side only, from the 2nd to the 12th somite inclusive, the other side having normal complement of tentaculæ on the 2nd, 5th and 11th somites (1946, *Entomologist*, **79**: 90). — D. G. SEVASTOPULO, F.R.E.S., P.O. Box 95026, Mombasa, Kenya.

LEPIDOPTERA OF SOUTH AND CENTRAL CORNWALL — SUPPLEMENT.—The following species can now be added to the original list published in the *Entomologist's Record*, vol. 85 (12): 273-276. The insects were kindly identified for me by Dr J. D. Bradley of the British Museum (Nat. Hist.). Reference should be made to the original paper for the key to locality abbreviations. TORTRICOIDEA (contd.):—*Acleris latifasciana* Haw. (M); *A. aspersana* Hübn. (C); *Bactra lancealana* Hübn. (Retallock); *Brachmia gerronella* Zett. (M); *Cnephasia interjectana* (Haw). (GM); *C. stephensiana* Doubl. (M.P.); *Cydia succedana* D. & S. (R); *Epinotia nisella* Cl. (GM); *E. tenerana* D. & S. (M.P); *Epiphyas postvittana* Wkr. (P); *Eupoecilia angustana* Hubn. (M); *Olethreutes lacunana* D. & S. (Clift.) — JANE E. MARSHALL, 37 Layton Crescent, Croydon, Surrey, CR0 4EA.

ABNORMAL LARVAE OF PAPILIO DEMODOCUS ESP. (LEP.: PAPILIONIDAE).—Two larvae, out of a number reared in connection with experiments in pupal dimorphism, were abnormal in their final instar. The abnormality consisted of the presence of small subdorsal points on the 8th, 9th, 10th and 11th somites, vestiges of the scoli of the earlier instars, in addition to the usual small scoli on the 12th somite.

A somewhat similar larva of the closely allied *Papilio demoleus* was reared in Calcutta and recorded by me (1948, *Entomologist*, 81: 199). — D. G. SEVASTOPULO, F.R.E.S., P.O. Box 95026, Mombasa, Kenya.

ATOLMIS RUBRICOLLIS L. ON THE CORNISH COAST. — While staying in Mullion, Mr J. Messenger and I motored over to the vicinity of Helston on 24th June to visit the Loe, the large lake to the south of the town. We parked our car near Porthleven and walked nearly a mile along the rough path of a low cliff. When we reached the beach bordering the lake my companion showed me a specimen of the Red-necked Footman he had caught flying at the entrance to the beach. The weather was overcast with a slight wind and the time was 3.30 p.m. Shortly afterwards at this same spot the whole air seemed full of these footmen flying up from the short grass by the beach. We caught several and one more about half an hour later flushed apparently from the beach itself, altogether a most unusual site for this insect and especially in dull weather. We did not see them anywhere else. The nearest large trees seemed to have no lichen on their trunks. In fact the only lichen we could find was on some old wall, so whence their origin? Were they breeding nearby or had they flown in across the sea. Their usual habitat is woods where they fly freely in sunshine, sometimes in great numbers. We kept a female which obliged with a large batch of ova, so have high hopes of breeding them.— C. G. M. DE WORMS, Three Oaks, Shores Road, Horsell, Woking, Surrey. 2.vii.1974.



## **Exotic Entomological Specimens**

**LEPIDOPTERA — COLEOPTERA — MISCELLANEOUS  
INSECTS OF THE FINEST QUALITY WITH DATA**

20 page Illustrated Catalogue, 20p

**LIVESTOCK — please send 15p for current catalogue of Ova,  
Larvae, Pupae, Cocoons, etc.**

**R. N. BAXTER**

**16 BECTIVE ROAD, FOREST GATE, LONDON, E7 0DP,  
ENGLAND**

**FOR A PERSONAL AND INTERESTED SERVICE**

In your replies please mention "The Entomologist's Record"

## **ENTOMOLOGICAL CABINETS**

**Ten Drawer Unit Insect Sections**

---

*Sole manufacturers of the "Hill" Interchangeable  
Unit System formerly produced by J. J. Hill & Son Ltd.*

---

**R. Cattle, Limited**

*Precision Woodworkers*

P.O. BOX NO. 1

**Oxford Road. Gerrards Cross, Bucks.**

**Tel. Gerrards Cross 87131 (4 lines)**



# IMAGO BUTTERFLIES

LEPIDOPTERA SUPPLY & RESEARCH SPECIALISTS

Suppliers of Livestock — Exotic and European  
Over forty species listed

Plus prospective list of species we hope to supply in the near future  
General Catalogue available on receipt of 30p (Overseas \$1)

This includes subscription to our annual mailing lists

---

62 HIGH STREET, CROYDON, SURREY, ENGLAND

Please mention the Entomologist's Record

---

## FOR THE ENTOMOLOGIST

Apparatus, Books, Cabinets and Set Specimens

Price lists of the above are issued from time to time so if you  
would like to receive regular issues please send me a postcard  
stating your interests

---

**L. CHRISTIE**

137 Gleneldon Road, Streatham, London, S.W.16, 2BQ, England

(Postal business only)

*Official agent for publications of the Amateur Entomologist's  
Society*

---

**the BUTTERFLY FARM LTD. (Founded 1894)**

**Bilsington, Ashford, Kent England TN25 7JW. Tel. Ham St. 2513**

---

As the oldest farm in the world we are justly proud of our reputation  
as suppliers of the finest entomological materials.

For livestock and preserved specimens from all over the world; books  
new or old; breeding, storage and collecting equipment; educational dis-  
plays, please write for lists and details of our Mailing Index.

We urgently need suppliers of surplus collections, books and  
cabinets, and also reliable suppliers of livestock.

Visitors especially welcome to look around *the Butterfly Farm*, please  
phone in advance. See our living and museum displays and our British  
Wildlife Sanctuary—to which a small charge will go.

---



---

## EXCHANGES AND WANTS

*For Sale.*—Separates of "Emmet's Notes on some of the British Nepticulidae". Price 35p per copy. Printed covers for the collection of 5 parts.—Apply to S. N. A. Jacobs, 54 Hayes Lane, Bromley BR2 9EE, Kent.

*Back numbers.*—Our supplies of certain back numbers are now a little reduced and we would be willing to buy in a few copies of Vols.: 75, 77, 79, 82 and 83 at subscription rates. Due to an error there are now no further stocks of the January 1973 issue, we would therefore be indebted to anyone who could part with this issue.—S. N. A. Jacobs, 54 Hayes Lane, Bromley, Kent.

*The Maidstone Museum* have recently set up a Kent Biological Archives and Record Centre, which can now receive records based on the tetrad system (2 Km. sq.), for all insect orders. In particular, a scheme is being set up to record both Macro and Microlepidoptera from 1971 onwards. This is to run in parallel with the very successful plant scheme. The records will be available to any serious student of the Fauna or Flora of Kent. This ambitious scheme obviously must enlist the help of as many resident and visiting Lepidopterists as possible. For further information, please write to: S. E. Whitebread, 2 Twin Cottage, Grove Farm, Higham, Nr. Rochester, Kent, ME3 7NX. Records for other insect orders should be sent to Mr E. Philp at the Maidstone Museum, St Faith's Street, Maidstone, Kent.

*Offers wanted* for the bound volumes 9, 10 and 12 of the Entomologist Record. Replies to Colin Pratt, 5 View Road, Peacehaven, Newhaven. Sussex.

*Wanted.* — Samples of *Apamea monoglypha* (Dark Arches) from MV traps, to aid an investigation into the frequency of melanism in this species. We would like to obtain random samples, caught during the 1974 season, from any locality in the British Isles. If you think you might be able to help and would like further details please write to — J. Muggleton, Dept. of Zoology, University of Manchester, Manchester M13 9PL.

---

---

# THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

(Founded by J. W. TUTT on 15th April 1890)

---

*The following gentlemen act as Honorary Consultants to the magazine:*

*Orthoptera:* D. K. Mc. E. KEVAN, Ph.D., B.Sc., F.R.E.S., *Coleoptera:* A. A. ALLEN, B.Sc.; *Diptera:* E. C. M. d'ASSIS-FONSECA, F.R.E.S.

---

## TO OUR CONTRIBUTORS

All material for the TEXT of the magazine must be sent to the EDITOR at St Teresa, 1 Hardcourts Close, West Wickham, Kent.

ADVERTISEMENTS, EXCHANGES and WANTS to: E. H. WILD, L. Inst. Biol., 112 Foxearth Road, Selsdon, Croydon, Surrey, CR2 8EF. Specimen copies supplied by Mr Wild on payment of 40p or sterling equivalent which will be taken into account if the person in question becomes a full subscriber.

Changes of address, also enquiries regarding Back Numbers, Volumes and Sets of Volumes, to: S. N. A. JACOBS, 54 Hayes Lane, Bromley, BR2 9EE, Kent.

Subscriptions should be sent to the Treasurer, P. J. RENSHAW, 53 Links Road, West Wickham, Kent BR4 0QN, England.

REPRINTS: 25 copies, taken straight from the magazine are sent gratis to contributors of articles; these may contain extraneous matter. More formal reprints from re-set type may still be had at cost price. and orders for these should be given, at the latest, with the return to the Editor of the corrected proof.

ILLUSTRATIONS are inserted on condition that the AUTHOR DEFRAYS THE COST.

Contributors are requested not to send us Notes or Articles which they are sending to other magazines.

All reasonable care is taken of MSS, photographs, drawings, maps, etc., but the Editor and his staff cannot hold themselves responsible for any loss or damage.

---

## SPECIAL NOTICE

The Editor would be willing to consider the purchase of a limited number of certain back issues.

---

# FRESHWATER LIFE

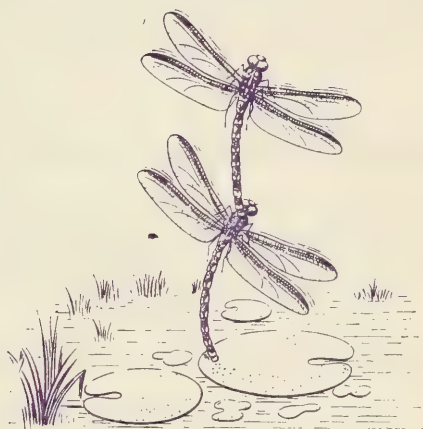
By John Clegg

7232 1762 9

222 x 153 mm

296 pages

£6.00 net



This is the new edition of the popular reference book on the plants and invertebrate animals of ponds, lakes, streams and rivers.

This edition has been extensively revised and, to meet the needs of the serious student, now includes more scientifically precise information. Besides giving details of the various groups of freshwater plants and animals, the book also has useful chapters on collecting specimens and on the practical applications of freshwater biology in the fields of water supply, sewage disposal and pollution. With 14 plates in full colour, 50 in black and white, and line drawings in the text.

**FREDERICK WARNE**

40 Bedford Square London WC1B 3HE





---

## THE AMATEUR ENTOMOLOGISTS' SOCIETY

---

The Society was founded in 1935 to cater especially for the younger or less experienced Entomologist.

For full details of publications and activities, please write (enclosing 3p stamp to cover postage) to:—**R. D. HILLIARD**, Hon. Advertising Secretary, A.E.S., 18 Golf Close, Stanmore, Middlesex.

---

---

## BRITISH NATURALISTS' ASSOCIATION



has twenty active branches in Britain and a world-wide membership. Its official organ, *Country-Side* (published three times a year), is the oldest-established British magazine devoted to general natural history

Membership subscription 75p per annum

*Full details and application form obtainable from:*

**B.N.A., 'Willowfield', Boyneswood Road, Four Marks, Alton, Hants**

---

---

## THE NATURALIST (founded 1875)

*A Quarterly Illustrated Journal of Natural History*

---

**Edited by W. A. SLEDGE, Ph.D., B.Sc.**

Annual subscription: £2.00 (post free)

Single numbers 50p

---

*Separates of the collected instalments of the:—*

### **LEPIDOPTERA OF YORKSHIRE (Macrolepidoptera)**

which appeared serially in *The Naturalist* (1967-1970) are also available on application. Price 50p, plus 4p postage

**The Editor of the Naturalist,**

Department of Botany, The University, Leeds, LS2, 9JT

---

# AURELIAN BOOKS

---

Antiquarian, Recent and New Books on Insects, Plants,  
Birds, Mammals and General Natural History bought and  
supplied

*Libraries purchased — Catalogues issued — Personal re-  
quirements searched for. Please advise us of your wants.*

Write or telephone

**AURELIAN BOOKS, Tumbledown Dick's, Green Tye,  
Much Hadham, Hertfordshire.**

**Telephone: Much Hadham 2676**

POSTAL BUSINESS ONLY

---

*We have over 800 rare species of*

**BUTTERFLIES, BEETLES, SCORPIONS,  
CENTIPEDES, and other types of Insects**

from

Portuguese Timor, South Vietnam, Borneo, Thailand, Malaysia,  
New Guinea and Burma.

All our Butterflies and other Insects are guaranteed to be of  
good quality.

*Write to:* NATURE RESERVES OF SOUTH ASIA AQ.,  
Khoo Eng Howe Banguanan,  
671 Upper Serangoon Road,  
SINGAPORE, 19

---

---

# SARUMAN

(incorporating the Butterfly Centre)

Business Reg. No. 1685058

V.A.T. Reg. No. 210 4043 36



Specialists in British and World Lepidoptera and Entomological  
Equipment — Literature — Livestock — Photographs

58 HIGH STREET, TUNBRIDGE WELLS,  
KENT TN1 1XF ENGLAND

Telephone: Tunbridge Wells 31926

Hours: 9.30 a.m.—5.30 p.m. except Wednesdays and Sundays

Directors: Paul Smart, F.R.E.S., Gita Smart; Consultant: John Muirhead;  
Technical Staff: Trevor Scott, Chris Samson, F.R.E.S.

Main catalogue 'Butterflies Presented by Saruman'. 1000 plus  
species listed: equipment: books: etc., 40pp inc. colour plates  
85p plus 10p postage

Supplementary lists (10 issued per year): 40p per annum.

Wanted to Purchase — Collections, Cabinets, Entomological  
libraries, large or small; Livestock, etc.

In your replies please mention  
'The Entomologist Record'

---

# CONTENTS

A Recently Discovered Race of the Cape Lycaenid <i>Phasis thero</i> (L.). C. G. C. DICKSON and C. W. WYKEHAM .....	177
Early Stages of <i>Lampronia praelatella</i> (D. & S.) (Lep.: Incurvariidae). A. M. EMMET .....	180
Those Mild Winters. Dr M. W. HARPER .....	182
Studies on the Occurrence and Distribution of the Genera <i>Cionus</i> and <i>Cleopus</i> (Col.: Curculionidae) in South Hampshire, 1973. P. CUNNINGHAM .....	184
Observations on British Butterflies, 1973. Dr C. J. LUCKENS ....	188
<i>Cheilosia sahlbergi</i> (Dipt.: Syrphidae) in Britain. MARTIN C. D. SPEIGHT .....	193
<i>Semiothisa signaria</i> Hübner (Lep.: Geometridae) New to Britain. R. TOMLINSON .....	195
The Butterflies of the Maltese Islands. ANTHONY VALLETTA ..	196
A Tortrix New to Britain: <i>Pammene luedersiana</i> Sorhagen. G. H. YOU DEN .....	197
Antennal Variation in <i>Erioptera pilipes</i> (Fabricius) (Diptera: Tipulidae). E. G. HANCOCK .....	197
New and Inadequately Described Aberrations of <i>Abraxas grossul-</i> <i>ariata</i> (Linn.) (Lep.: Geometridae). G. EVELYN HUTCHIN- SON .....	199
<i>Phyllonorycter mulleriella</i> Z. ( <i>amyotella</i> Dup.) Lep.: Gracil- lariidae) in Britain. A. M. EMMET .....	206
Albarracin and Vicinity, Spain, in July 1973. JOHN and MARGARET DACIE and JACK and DOROTHY GREENWOOD .....	208
1973—A REMARKABLE YEAR. B. GOATER .....	214
Editorial. J. M. CHALMERS-HUNT .....	220
Notes and Observations:	
Vice among the Vanessids. PAUL JEFFREY .....	220
<i>Inachis io</i> L. ab. <i>dyopthalmica</i> Garb. near Hailsham, Sussex. I. C. BEAVIS .....	221
Notes on a Colony of Hesperiiidae at Tunbridge Wells, Kent. I. C. BEAVIS .....	221
<i>Odontesia carmelita</i> Esp. at Tunbridge Wells, Kent. I. C. BEAVIS .....	221
The Bedstraw Hawk ( <i>Hyles gallii</i> Rott.) in 1974. BRYAN W. MOORE .....	221
<i>Cryphia muralis</i> (Forster) in Wiltshire. P. M. HEATH ....	221
<i>Philereme transversata</i> Hufn. (Lep.: Geometridae) in Ireland. J. M. CHALMERS-HUNT .....	221
Distribution of some Grecian Butterflies. B. J. LEMPKE ..	222
<i>Trichopteryx carpinata</i> Borkh. attracted to <i>Biston strataria</i> Hufn. L. W. SIGGS .....	222
<i>Macroglossum stellatarum</i> L., <i>Plusia gamma</i> L. and other Migrants in South Devon and the Lizard. C. G. M. de WORMS .....	222
Some Unusual Dates at Horsell during May and early June 1974. C. G. M. de WORMS .....	223
<i>Discoloxia blomeri</i> Curt. in Hampshire. L. W. SIGGS .....	223
A Teratological Brood of Larvae of <i>Danaus chrysippus</i> L. (Lep.: Danaidae). D. G. SEVASTOPULO .....	223
Lepidoptera of South and Central Cornwall — Supplement. JANE E. MARSHALL .....	224
Abnormal Larvae of <i>Papilio demodocus</i> Esp. (Lep.: Papi- lionidae). D. G. SEVASTOPULO .....	224
<i>Atolmis rubricolis</i> L. on the Cornish Coast. C. G. M. de WORMS .....	224



# THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

*Edited by J. M. CHALMERS-HUNT, F.R.E.S.*

*with the assistance of*

A. A. ALLEN, B.Sc., A.R.C.S.

C. A. COLLINGWOOD, B.Sc., F.R.E.S.

NEVILLE BIRKETT, M.A., M.B.

H. C. HUGGINS, F.R.E.S.

S. N. A. JACOBS, F.R.E.S. (Registrar) S. WAKELY

Lieut. Col. A. M. EMMET, M.B.E., T.D., F.R.E.S.

H. B. D. KETTLEWELL, M.A. M.B., B.CHIR., F.R.C.S., L.R.C.P., F.R.E.S.



ANNUAL SUBSCRIPTION FOR THIS VOLUME No. 86

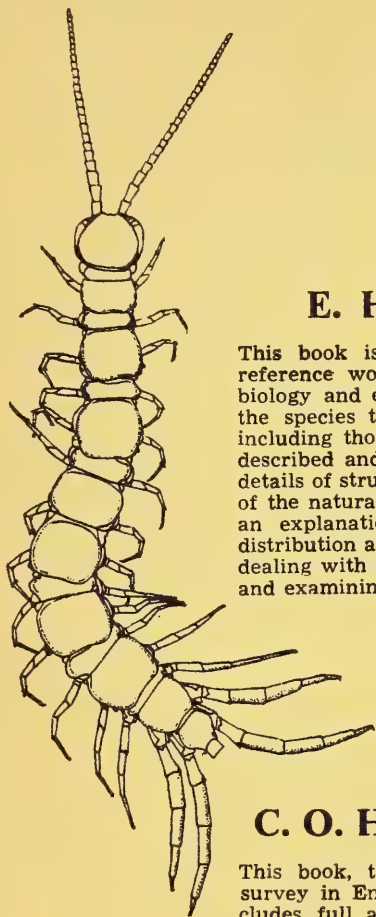
£4.00 Post free, for payment in sterling.

£4.25 if payment is made in Foreign Currency.

Is now due and should be paid to

*Hon. Treasurer:*

P. J. RENSHAW, 53 Links Road, West Wickham, Kent, BR4 0QN



# Centipedes of the British Isles

**E. H. Eason      £3.15 net**

This book is the only fully comprehensive reference work to deal exclusively with the biology and ecology of British centipedes. All the species to be found in the British Isles, including those doubtfully recorded, are fully described and illustrated. The book also gives details of structure and life history, an account of the natural history of the group as a whole, an explanation of the principles governing distribution and classification, and an appendix dealing with methods of collecting, preserving and examining specimens. ISBN 0 7232 0026 2

# Flies of the British Isles

**C. N. Colyer and  
C. O. Hammond      £2.75 net**

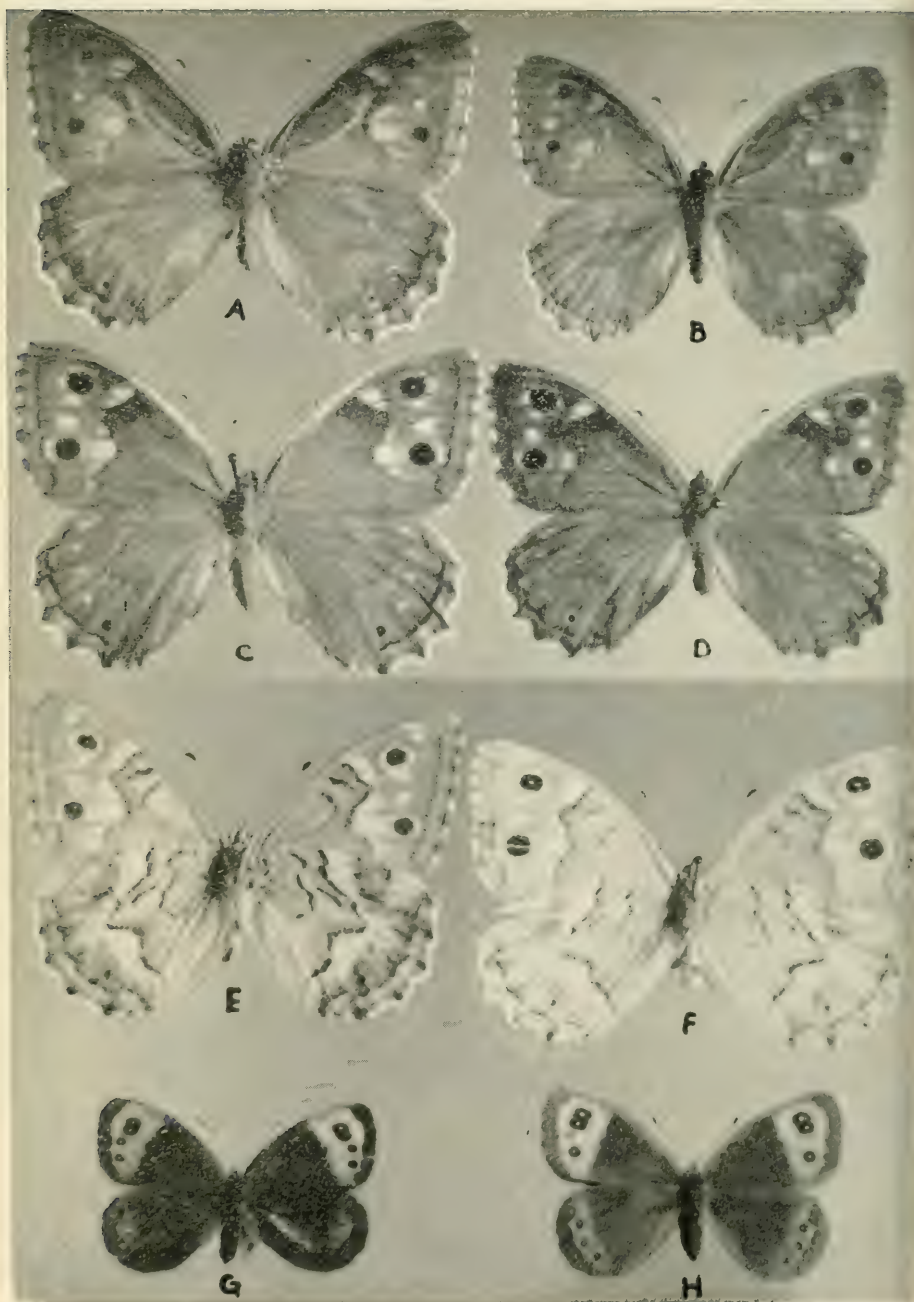
This book, the only modern comprehensive survey in English of the British Diptera, includes full accounts of structure and of the more interesting life histories and habits. More than 250 representative species are illustrated in 53 plates, many in colour, and numerous text figures drawn from specimens collected by the authors. There is a section each on the Nematocera, the Brachycera, the Cyclorrhapha, the Acalypterates, the Calypterates, and the Pupipara. In addition a long introductory section provides a detailed analysis of the structure of the fly. The book contains a glossary, a bibliography, and is fully indexed. ISBN 0 7232 0004 1

**FREDERICK WARNE & CO LTD**

**40 Bedford Square London WC1B 3HE**



PLATE XIX





## Butterflies of Majorca

By M. J. PERCEVAL

Holmesdale Cottage, North Holmwood, Dorking, Surrey

Since my visits to Majorca some years ago it had been my intention to study the material I collected there. For one reason and another this was delayed rather longer than I would have wished. When I started, the lack of any comprehensive and reasonably up to date information on the Rhopalocera of the island became immediately apparent. The most comprehensive work is that by Rebel. His initial paper dealing with 26 species from the Balearic islands was published in 1926. This was followed in 1934 by a supplementary note adding three more species. After a gap of 32 years Bretherton mentions 29 species from the islands, presumably based on Rebel's earlier work. In 1970 however, Manley and Allcard showed 31 species in their Check List, but their accompanying notes were not comprehensive and referred to only a few species of special interest.

The information given by Rebel is now more than 40 years old, and in some cases much older than that, where he refers back to even earlier reports for his evidence. In an endeavour to update this information I have examined the limited number of more recent reports that I have been able to trace. While Rebel, Bretherton, and Manley and Allcard have treated the Balearic Islands as a whole, my own work and all the other recent reports I have traced relate only to Majorca. This paper therefore is only concerned with the butterflies of Majorca and not the other islands of the group. I have no evidence that all the species that occur in Majorca also occur on the other islands, although probably most of them do. Majorca is however substantially larger than any of the other islands, having an area of 3390 sq km compared with Minorca's 760 sq km and a total of about 700 sq km for the rest, the largest of which is Ibiza.

### PLATE XIX

- A) *Pseudotergumia fidia balearica* ssp. nov. male Holotype, upper-side. Formentor.
- B) *Pseudotergumia fidia balearica* ssp. nov. male Paratype, upper-side. San Agustin.
- C) *Pseudotergumia fidia balearica* ssp. nov. female Allotype, upper-side. Formentor.
- D) *Pseudotergumia fidia balearica* ssp. nov. female Paratype, upper-side. San Agustin.
- E) *Pseudotergumia fidia balearica* ssp. nov. male Holotype, under-side. Formentor.
- F) *Pseudotergumia fidia balearica* ssp. nov. female Paratype, under-side. Formentor.

All taken July 1965, Majorca

Most writers have commented upon the paucity of species found in Majorca. While it is well known that islands usually support less species than the neighbouring mainland areas this situation is particularly marked in this case. Undoubtedly the unsuitability of much of the habitat is a contributory factor. The island is very dry, especially in the summer months. Almost all the suitable areas are heavily cultivated and, while the mountains reach to 1500 m, they are often almost devoid of vegetation. The arid condition also result in many specimens from the island being less than normal size, especially in summer broods, because of dessication of larval food plants.

Majorca is 190 km from the Spanish mainland, 270 km from the North African coast and 420 km from Sardinia. It would be expected therefore that its butterfly population would be primarily influenced by that of Spain. This is however, not always the case. While all the 31 species listed by Manley and Allcard occur on the Spanish mainland, all but four also occur in North Africa and all but seven occur in Sardinia. As will be seen from the following notes on individual species however, the four absent from North Africa and five of the seven absent from Sardinia are rare or doubtful residents of Majorca.

As the more recent reports all relate to the months of April, May and July only, I have also included the earlier note by Smith as this deals with October. Reference to the authors in the notes on each species relate to their observations as follows:

D. Smith: Three weeks in October 1951, mainly round Palma.

Myself (1): 10th-31st July 1965, mainly in the south of the island.

Myself (2): 2nd-17th April 1966, Puerto Pollensa.

P. R. Grey: Two weeks in mid May 1966, no localities given.

B. R. Dickson: 10-22nd July 1966, Palma.

T. R. New: 2nd-14th April 1967, mainly near Palma.

S. N. A. Jacobs: 3rd-17th May 1970, Cala Mayor, Palma.

The following notes deal only with the 31 species listed by Manley and Allcard. A few other species have been mentioned in very early reports, including *Iphiclides podalirius* L. and *Parnassius apollo* L. both of which were discounted by Rebel pending further evidence which as far as I know has not been forthcoming.

*Carcharodus alceae* Esp. Only noted by New who records two worn specimens. The only other report I can find is that of Muschamp in 1904. This species does not appear to be common in Majorca.

*Gegenes nostrodamus* Fab. No recent report of this species, in fact a single male taken at Torrent de Polverin in the Sierra Burguesa west of Palma on 1st August 1932 (Rebel 1934)

appears to be the only record of the species from Majorca. It's present status on the island is thus in doubt, although it is a very inconspicuous species and it could well have escaped attention.

*Papilio machaon* L. Noted in all recent reports except that of Jacobs. The species is common and widespread in the island. Specimens from Majorca are quite distinct from those of the Spanish mainland. They are more heavily marked and have wider post discal bands. I have not seen third generation specimens but Smith records that his taken in October were also heavily marked. The size of Majorcan specimens is variable. The first generation is usually large, I have one female with a forewing measurement of 48 mm, however, Smith notes that his specimens were small.

A number of subspecies have been described from southern Europe and the Mediterranean area and the exact status and distribution of each I have found difficult to find. I consider that Majorcan specimens are not ssp. *hispanicus* Eller from the Iberian Peninsular, nor are they the central European ssp. *bigenerata* Vrtý. as suggested by New. While they show some similarity to some North African Specimens (ssp. *mauretanicus* Vrtý.), I consider them to be ssp. *sphyrus* Hübn. They closely resemble Verity's description and illustrations of this subspecies from southern Calabria, Sicily, Malta and Sardinia.

*Leptidea sinapis* L. I have found no recent records of this species. The last report I can find is of a single female taken between Esporlas and Banalbufar on 10th August 1932 (Rebel 1934). Earlier reports record the species from Alcudia. It's current status is thus in doubt.

*Pontia daplidice* L. Recorded in all recent reports except Grey and Jacobs. My specimens of this fairly common species illustrate well the reduction in size of Majorcan specimens already mentioned. While the spring form of this species is usually smaller than the summer one, in my Majorcan series the reverse is the case. Higgins and Riley give the male forewing measurement of this species as 21-24 mm. however, my July specimens from San Agustin on the western outskirts of Palma measure 17-21 mm. and average 19 mm.

*Pieris rapae* L. Noted by Smith, myself (1) and (2), Dickson and New. Smith and New found it to be very common, I found it less so. Those on the wing in April were normal, but my July specimens are small and pale with the usual grey dusting on the hindwings absent.

*Pieris brassicae* L. Only recorded by New, five specimens, and myself (1), one male. My single specimen was an interesting one, being very small and having the forewing spot in S3 present on the upperside, ab. *nigronotata* Jach.

*Colias crocea* Geoffroy. Noted in all reports except Jacobs. Most indicate, however, that it was not common although I found it quite numerous in some localities, especially near Santa Ponsa, west of Palma on the coast. My series of this species exhibits quite noticeable seasonal variation. The second generation (July) is usually smaller and the ground colour of the males is paler than those of the first generation (April). The upperside of the hindwings in the males of the first generation have a heavier and more extensive dusting of black scales. The females include both f. *helice* Hub. and f. *helicina* Obth.

*Gonepteryx cleopatra* L. Recorded by all except Jacobs. I found it quite common on both my visits. My specimens are the type ssp. *cleopatra* L. which also occurs in North Africa and Sardinia but not in Spain where it is replaced by ssp. *europaea* Vrtý. My Majorcan specimens are small and the orange area on the forewing of the males is less extensive than in ssp. *europaea* Vrtý. I have not found ssp. *balearica* Bubacek, described in 1920 as larger than normal with an almost uniform yellow-green underside in the males.

*Gonepteryx rhamni* L. Not noted in any recent reports. This species is not listed by Rebel, and Bretherton states that it does not occur in the Balearics. Manley and Allcard, however, include it in their check list. I understand from Mr Allcard in correspondence that it is included in his list on the basis of the report by Holford (1915). Rebel discounted Holford's report as a case of mistaken identity and having studied Holford's paper I consider this to be almost certainly the case. During his stay on the island Holford recorded his observations day by day. Between 16th February and 31st March he noted eight specimens of *G. cleopatra*, all of which were male. During the same period he also records five female *G. rhamni*. However he records no female *G. cleopatra* and no male *G. rhamni*. In the absence of any confirmed report of *G. rhamni*, it seems safe to assume that these unlikely records are in error and that the specimens listed as female *G. rhamni* were in fact female *G. cleopatra*. The only other mention of *G. rhamni* is that by Jones in 1906 who simply notes "*G. rhamni* and *cleopatra*—occasional specimens". These were observations of specimens on the wing and again were probably incorrect identifications. I can find no reliable evidence that this species occurs in Majorca.

*Charaxes jasius* L. Not mentioned in any of the recent reports. Manley and Allcard, however, state that the species is found in plenty on the island and they illustrate three specimens. Mr Allcard informs me that these were bred



from ova found on the island and that he found the species in late August and early September in 1958 and 1960. Rebel (1932) records it from Arta and Ratjada in the north-east of the island.

*Pandoriana pandora* D. & S. In recent reports only noted by myself (1). I took one large female at San Agustin, just west of Palma. I saw a few others in this area and also in the south-east corner of the island near Puerto de Campos.

*Vanessa cardui* L. Noted in all recent reports. Smith found it common in October and I found it common but worn in April. It was recorded as less common in other reports, Grey saw only one, New a few and I saw only one in July.

*Vanessa atalanta* L. Smith found this species commonly. I saw a few at Puerto Pollensa on my second visit and also found a fully grown larva which pupated and subsequently emerged when I returned home. New also notes it as fairly common.

*Nymphalis antiopa* L. No recent records of this species. Rebel notes it as very rare in the Balearics and the last actual report I can find is that by Muschamp in 1904. It is probably only a very occasional migrant to the island which would be at the southern extremity of its range. It does not occur in North Africa, Southern Spain or Sardinia.

*Pararge aegeria* L. Common in Majorca and recorded in all recent reports. Majorcan specimens are generally small, the average male forewing measurement of my specimens is 20 mm. The orange markings on the upperside are more extensive than in my specimens from southern France and northern Spain. The underside hindwing markings are distinctive. The submarginal area is pale mauvish and the ocelli are small. The usual dark wavy lines in the discal and post discal areas are very much reduced and in some cases absent. The light yellow post discal marking extending downwards from the costa is also much reduced or absent. In some specimens the submarginal mauve colouring extends inwards along V4. The impression is of a much less mottled appearance than usual in this species. Having studied a long series of ssp. *sardoa* Vrtý. from Sardinia I consider Majorcan specimens referable to this subspecies, although the underside hindwings tend to be somewhat darker and richer in colour than is usual in specimens from Sardinia and the lack of markings seems more extreme. I would however need to study a longer series from Majorca to confirm this latter point.

*Lasiommata megera* L. Smith records this species as probably the most abundant he encountered. I found it much less numerous although I saw it on both my visits. It was also noted by Dickson and New. As is well known, the Majorcan race of this species is interesting as a substantial proportion of specimens are ab. *intermedia* Muschamp, half way between the nominate race and ssp. *paramegaera* Hübn. from Corsica and Sardinia.

*Coenonympha pamphilus* L. A common species recorded by all but Grey. My summer specimens are small and all *f. lyllus* Esp., some extreme. Spring specimens are darker.

*Pyronia cecilia* Vall. Noted by Grey, Dickson, New and myself (1). I found it common in July but almost all the specimens I saw were female. Grey records seeing only males in May. This would seem to be a species in which the difference in the emergence time of the two sexes is particularly marked. My Majorcan specimens appear identical to my specimens from the Costa Brava. As specimens from this latter area have been named ssp. *catalana* de Sagarra, Majorcan specimens seem referable to this subspecies. (Note: Grey's reference to *Maniola tithonus* is really to this species, he subsequently corrected this error).

*Maniola jurtina* L. The only recent record of this species is of the few seen by me in July. Thomson (1969) lists the Majorcan population as ssp. *hispulla* Esp. which also occurs in most of Spain, Sardinia and probably Corsica, but not in Africa where it is replaced by ssp. *fortunata* Alpheraky.

*Pseudotergumia fidia* L. Noted by Dickson and myself (1). I found this species at San Agustin among the pine woods and also near Formentor in the north of the island. I consider that the Majorcan race is a separate subspecies, distinct from both those in North Africa and on the European mainland. It is best marked subspecies of this species.

*Pseudotergumia fidia balearica* ssp. nov.

*Upperside. Male:* The ground colour is lighter than normal. The post discal marking on the forewings of this species are usually very faint or absent altogether, in ssp. *balearica* however they are prominent. There is one divided one in S4 and S5 and a second and larger one centred in S2 but extending into S1 and S3. In this subspecies the androconial bands are more noticeable than usual as they are the same pale colour as the post discal markings. The two ocelli on the forewings and the small white spots between them are normal size but the ocelli have faint pale rings round them.

*Female:* The markings of the female of this species are more distinctive and prominent than in the male. While there is a certain amount of individual variation, the North African subspecies usually differ from the European ones in two main respects. On the forewings the post discal markings tend to be better developed in the European subspecies, especially in ssp. *paleia* Fruhstorfer, but the yellow rings round the ocelli are usually absent. In the North African subspecies the reverse is the case, the post distal markings are poorly developed but the yellow rings are prominent. This is especially so in ssp. *hebitis* Rothsch. and also in ssp. *intermedia* Rothsch. Ssp. *balearica* combines the features of both ssp. *paleia* and ssp. *hebitis* in having prominent post discal markings and also well developed rings round the ocelli. As in the male, the ground colour is lighter than normal.

*Underside.* The underside of this species is different in North Africa and European specimens. North Africa ones have been named f. *albovenosa* Astant. as the nervures are more prominently marked with white giving the underside a more segmented look than in European specimens, especially on the hindwings. Ssp. *balearica* is of the European type, not f. *albovenosa*. The colouring is not the usual greyish but more buff coloured. The overall impression is of it being paler than normal with less contrast between the light and dark areas. This is particularly marked in the females some of which are very pale and washed out looking.

*Size.* The size of ssp. *balearica* is variable. My series was collected in two areas. The Holotype and Allotype were taken near Formentor, the male Holotype has a forewing measurement of 33 mm and the female Allotype 34 mm. Paratypes from this locality are of similar size, however those from San Agustin are smaller, the males are 28 mm and the females 30 mm.

My series was taken between 12th and 30th July 1965. The Holotype, Allotype, 3 male and 5 female Paratypes are in my collection.

*Lycaena phlaeas* L. New records three specimens, all f. *eleus* Fab. I found the species quite common in certain localities in July, especially at Santa Ponsa. All my summer specimens are f. *eleus* Fab., they are small but not so heavily suffused with black as my specimens from the Costa Brava. The only specimen I took on my second visit in April was not of this seasonal form but f. *caeruleopunctata* Ruhl.

*Syntarucus pirithous* L. Noted as very common and widespread by Smith. I found it common in July. New records it as less common but he found a few specimens near Genova. I found it commonest in the garden of the house in which we stayed in San Agustin where it was attracted to certain flowers. It also occurred at Santa Ponsa.

*Lampides boeticus* L. Two specimens recorded by Grey and also noted by Dickson. One found by New at Genova. I did not see this species on the island. This however, seems more a question of bad luck than because of its rarity.

*Celastrina argiolus* L. A few recorded by Smith, I found it in one locality near Soller in July and New noted one specimen from Palma. On examining my Majorcan specimens and checking them with specimens from other areas, I find that this species is represented in Majorca by ssp. *mauretanica* Rothsch. not the usual southern European ssp. *calidogenita* Vrtý. Ssp. *mauretanica* is mainly North African, but also occurs in Andalusia. Majorca is perhaps the northernmost extent of its range.

*Aricia cramera* Esch. Noted by Dickson, New and myself (I). New records this species as fairly common but I found it only in one place near Santa Ponsa. My specimens are small, the upperside ground colour is lighter than usual and the red markings are complete on all wings and well developed, particularly in the female. The underside ground colour is a rich brown.

*Polyommatus icarus* Rott. Smith, myself (1) & (2) and New. Probably the best known of the island's species, ssp. *balearica* Rebel. The main features of this subspecies are its small size and bright colouring. Smith took one female, I found it quite numerous in July and found one male at Puerto Pollensa in April. New notes it as common round Palma. Manley and Allcard record finding similar specimens on the Spanish mainland at Benidorm. This small subspecies may not therefore be restricted to the Balearics.

*Lysandra bellargus* Rott. Rebel (1926) showed this species with a question mark against it and expressed some doubt about earlier records. However, both Bretherton and Manley and Allcard list it. I know of only one recent report, Mr Allcard informs me that he found it flying in the grounds of the Fenix Hotel, Palma in the latter part of August 1960.

*Nordmannia esculi* Hüb. No recent evidence of this species from Majorca. In fact as far as I know, only one specimen has ever been recorded there and that was more than 40 years ago. A single female was taken on 19th Sept. 1932 at El Terreno, an area now absorbed into the suburbs of Palma (Rebel 1934). It does not occur in the other Mediterranean islands.

*Nordmannia ilicis* Esp. As far as I know this species has never been recorded from Majorca. Manley and Allcard



include it in their check list for the Balearics on the basis of a single record from Ibiza (de Sagarra 1920). This could have been a stray specimen, Ibiza is only 90 km. from the Spanish mainland and thus substantially nearer than Majorca. The Balearics are outside the normal range of this species which only reaches Northern Spain and does not occur in North Africa or Sardinia.

*Callophrys rubi* L. I found it at Puerto Pollensa in April and New records it as common in meadows round Palma and also further inland. My Majorcan specimens are the light ssp. *fervida* Stdgr. which is also found in Sicily, Sardinia, North Africa and parts of Spain.

On the basis of the above, there are 25 confirmed species on the island. The position of the remainder is more doubtful. There are a further three that have been recorded there in the past but the present status of which is in doubt, these are *G. nosrodamus*, *L. sinapis* and *N. esculi*. In addition *N. antiopa* probably occurs as a rare migrant. The remaining two on Manley and Allcard's list, *G. rhamni* and *N. ilicis*, I do not consider occur in Majorca on current evidence. Despite its popularity as a holiday centre, information from the island is limited. I would be most grateful therefore, for any further information or unpublished records concerning the island's Rhopalocera, especially with regard to the doubtful species mentioned above and of course any additional ones. Any such information sent to me at Holmesdale Cottage, North Holmwood, Dorking, Surrey, would be very much appreciated.

#### REFERENCES

- Bretherton, R. F. (1966). A distribution List of the Butterflies (Rhopalocera) of Western and Southern Europe. *Trans. Soc. Br. Ent.*, **17**: 1-94.
- Dickson, B. R. (1967). Further notes on Majorcan Insects (Editorial Note). *Bull. amat. Ent. Soc.*, **26**: 98
- Grey, P. R. (1966). Lepidoptera in Majorca—May 1966. *Bull. amat. Ent. Soc.*, **25**: 133-134.
- Higgins, L. G. and Riley, N. D. 1970. *A Field Guide to the Butterflies of Britain and Europe*. London.
- Holford, H. O. (1915). Notes on Butterflies in Majorca in Jan., Feb. and March 1914. *Entomologist*, **48**: 55-57.
- Jacobs, S. N. A. (1970). Majorca, 3-17 May 1970. *Ent. Rec.*, **82**: 208-210.
- Jones, A. H. (1906). Notes on the Lepidoptera of the Balearic Islands. *Entomologist's Mon. Mag.*, **42**: 170-171.
- Manley, W. B. L. and Allcard, H. G. (1970). *A Field Guide to the Butterflies and Burnets of Spain*.
- Muschamp, P. A. H. (1904). Majorca—Eight Days Entomology, Two New Butterfly Aberrations. *Ent. Rec.*, **16**: 221-223.

- New, T. R. (1967). A note on the Butterflies of the Balearic Islands. *Ent. Rec.*, **79**: 171-173.
- Perceval, M. J. (1967). More butterflies in Majorca. *Bull. amat. Ent. Soc.*, **26**: 95-97.
- Rebel, H. (1926). Lepidopteren von den Balearen. *Dt. ent. Z. Iris.*, **40**: 135-146.
- Rebel, H. (1934). Lepidopteren von den Balearen und Pityusen. *Dt. ent. Z. Iris.*, **48**: 122-138.
- Sagarra I. de. (1920). Alguns lepidoptera de la illa d'Eivissa. *Butll. Inst. catal. Hist. Nat.*, **20**: 117-120.
- Smith, D. (1953). Butterflies seen in Majorca during October 1951. *Entomologist.*, **86**: 29-31.
- Thomson, G. (1969). *Maniola (Epinephile) jurtina* (L.) (Lep. Saturi-dae) and its Forms *Ent. Rec.*, **81**: 88.
- Verity, R. (1940-1953). *Le Farfalle Diurne d'Italia*. Florence.

### POSTSCRIPT

Since completing this paper I have seen the newly published book *Mariposas de la Peninsula Iberica* by Miguel R. Gomez Bustillo and Fidel Fernandez Rubio. The distribution maps in this fine publication show three additional species from Majorca, *Pieris napi* L., *Issoria lathonia* L., and *Chazara prieuri* Pierret. The latter is included on the basis of a single specimen taken at Mal-Pas de Formentor in the northernmost part of the island. No additional information is given concerning the other two species, but I understand in correspondence with Dr Gomez Bustillo that both were recorded by Senor J. Fernandez. The finding of *C. prieuri* is particularly interesting. The *I. lathonia* record comes as no surprise, the surprising thing is that such a strong migrant has not been

## 1973—A Remarkable Year

By B. GOATER

22 Reddings Avenue, Bushey, Herts

(concluded from p. 219)

than we caught. I saw, and netted, one *Pyrausta cingulata* (Linn.). I had never seen so many plants of *Epipactis atropurpurea* (Hoffm.) as there were growing on the broken limestone on the Knott. Returning to the wood, I succeeded in boxing a perfect specimen of the usually very lively *taeniatum* off an ash stem.

Geoff was keen to introduce me to Meathop Moss, so after the briefest possible interlude for a meal, we hurried to that locality, so different from the places we had visited earlier in the day. It was good to see *Coenonympha tullia* (Müll.) in numbers — the first English specimens I had seen, and to net about a dozen of the local form of *Idaea muricata* (Hufn.). We also noted *Catoptria margaritella* (D. & S.) among lots of

*Crambus pascuella* (Linn.) and fewer *nemorella* (Hübner), *Scopula ternata* (Schrank) was nearly over, and *Carsia sororiata* (Hübner) just emerging. The evening went bitterly cold and we abandoned the idea of going to Sandscale Warren, where Geoff and Jerry had had a bumper catch a few nights back. Instead, we went to Whitbarrow after paying our respects to Black Tom's Lane. I netted a couple of very fresh *bractea* as they flew at dusk to a single spear thistle, but moths soon stopped flying and we went home to bed.

The next excursion was to East Anglia with David Agassiz on July 12th. Warm and overcast. The first stop was at Thorpeness, where *idaea ochrata* (Scop.) was quite common and readily put up from the long grass. We also netted some *Dichrorampha gueneana* Obr. and *Thiodia citrana* (Hübner) before rushing on to Barton Broad, where the objective was *Plusia putnami gracilis* (Lempke). A cold mist descended over the low ground, as so often happens, but nevertheless we achieved moderate success, and three *gracilis* fell to us before dawn. David wanted *Pelosia muscerda* (Hufner) and we managed three, while I was contented with a fresh *Diarsia florida* Schmidt which really does look a bit different from *rubi* in an indefinable way, and *Scopula immutata* (Linn.). Several second brood *Ectropis bistortata* (Goeze) turned up.

During July, numbers of *Eupithecia expallidata* Doubt. were emerging, from larvae collected in Hampshire. This is an uncommon species in that county, owing to the local distribution of the foodplant, *Solidago*.

The Family holiday commenced on July 26th. We were to camp our way northwards through Scotland to the Orkney Is., where we would be the guests of Ian and Daphne Lorimer. Our 'whistle stop' tour began in Lancashire, where we revisited the *taeniatum* locality in heavy, overcast conditions and I managed to catch six good specimens fairly easily, at any rate much more easily than would have been possible in sunny weather, when they leap off their resting place on tree or rock and dash away through the dappled shade, leaving the pursuer foundering among roots and rocks. There remained time to flirt with another new species *Eustroma reticulatum* (D. & S.) in one of its spots near the shore of Lake Windermere. After rather a long and fruitless search, we circled back and found it within a few yards of the car, quite easily disturbed from bushes and herbaceous growth near the foodplant, *Impatiens*. A few more came to the actinic soon after dusk, and I returned the following morning early before moving on to seek a few more. I was well pleased with a short series in good condition.

The first stop in Scotland was the *flavicinctata* ground where the parasitised larvae had been taken earlier in the year. Now the moth was common and very fresh, some speci-

mens having their wings still limp. These were disinclined to fly from the shaded rocks on which they were sitting, and were most difficult to see. Others flew more readily. Among them were numerous fresh *Xanthorhoe munitata* (Hübner.), all males. We stayed in the area next day, botanising and enjoyed seeing *Erebia epiphron* (Knoch) in some numbers, flying whenever the sun came out. A few of the better specimens of *Udea alpinalis* (D. & S.) were netted and retained.

On July 29th, we moved on to Rannoch and searched for hours for *Crambus ericella* (Hübner.). Eventually I found one very fresh specimen on boggy ground than I had expected but saw no others. One large larva of *Xylena vetusta* (Hübner.) was found on *Myrica*. I had bred this species from the egg, but had not seen the wild larva before. That night, after the midges had plagued us, I ran the actinic for a short time near some mountain ash trees, but saw no sign of *Venusia cambrica* Curt. The only visitor of any note at all was *Syngrapha interrogationis* (Linn.).

Next day we moved on to Speyside after hobnobbing with the family of one of the boys from school whom we met by chance while shopping in Kinloch Rannoch—small world. We found many midges sheltered in the quarry at Dalwhinnie in the morning, but braved them to look up the colony of *flavicinctata* there and find it flourishing. I was rather surprised to find one rather worn *Eupithecia distinctaria* H.-S. resting under an overhanging rock. We then visited a locality for *Semiothisa brunneata* (Thunb.) and found both sexes quite common but impossible to get in perfect condition. While the rest of the family was picking bilberries for supper (and an excellent meal they made), an Osprey circled overhead, calling, and later we saw it, or its mate, standing on a nest on the top of a dead pine. We wondered how many people had motored past this nest on the way to the famous Loch Garten pair!

In the evening we set up a leisurely camp just to the north of Aviemore, planning to have a go in the later hours for *sobrina*, at light or sugar. Glancing at our sailing papers, I saw we were due to sail in the morning from Thurso, and not the day after, so panic packing up and a long drive up to the Caithness moors instead of the *sobrina* hunt! The Fates are surely determined to keep this species and me apart; I defiantly ran the actinic for an hour before retiring, and attracted many small *Lycophotia porphyrea* (D. & S.) and a few rather worn *Diarsia mendica* (Fab.) of the normal Scottish moorland form, quite unlike those we were to see in Orkney a few days later, and far less fresh.

Though I have made several visits to Shetland, my previous experience of Orkney had been limited to two days in the early spring of 1950, on the way up to, and back from,



Shetland. My appetite for its insect life had been amply whetted by several pages of meticulously prepared typewritten 'gen' which Ian Lorimer had sent me as soon as he knew the visit was decided. Jane was rather more sceptical of the far north and its proverbial rains, gales and harrs. The boys were ready for anything, and assumed that everything would be interesting — a commendable attitude of mind. Looking back, I may say that for Jane, the holiday 'exceeded her wildest expectations', the children claimed to have enjoyed every moment of it, and I had an orgy of bug-hunting in as congenial company as one could possibly get, in a kaleidoscope of birds and plants and whisky and towering cliffs and waves and boats, and fine views and finer people.

We arrived in Stromness in mid-afternoon, and drove straightway to Scorradale. That evening, eager to sample the local insect fauna, I went out duskng with Ian along a track at the edge of moorland, and into a small disused quarry. The local *munitata* were very like those from the Scottish mainland, and quite different from the Shetland race. I collected several *Chloroclysta truncata* (Hufn.) of a form resembling *C. concinnata* (Steph.), and obtained a number of eggs. The lepidopterous inhabitants of Orkney have been fully described by Ian Lorimer (1970, *Entomologist's Gaz.*, 21: 73-101), and it would be tedious to offer a complete list of the species and forms which we encountered during the following fortnight. A m.v. trap was operated in the garden at Scorradale every night and most of the local specialities turned up. Dark forms of *Rhyacia simulans* (Hufn.) were fairly common but erratic in appearance: several would appear one night, then there would be a gap of some days before more were seen. Once, a specimen was found inside the house, but searches of the outhouses were quite unsuccessful, and none were to be found fluttering against the windows of such buildings at dusk, as I had hoped.

Our first outing with the Lorimers was to South Ronaldsay, reached by driving across the Churchill barriers from island to island—very sporting in a high wind with the tide running. The boys were taking part in one of the many regattas, and in between willing them onwards to the finishing line, I scrambled about on some low cliffs, amongst sopping vegetation, searching for larvae of *Eupithecia pulchellata hebudium* Sheldon. These were rather common, and of all sizes, in flowers of foxglove, and struck me as being very dark coloured, glossy olive black. Ian said, "Take plenty, they will be heavily parasitised", so I did, and now have many perfect looking pupae. I seem to have been rather fortunate with pug larvae recently, after having suffered many disappointments in the past with parasites.

Two localities which thrilled us more than most were the sandhills on Burray, which teemed with butterflies during the day, mostly a fine form of *Argynnis aglaja* (Linn.), *Poly-*

*ommatus icarus* (Rott.) and *Maniola jurtina* (Linn.), and with moths at night, and the fine cliffs at Yesnaby, the tops of which were covered with the extremely local *Primula scotica* Hook., many still in excellent flower. I paid a visit to these cliffs one night, and picked up larvae of *Hadena confusa* (Hufn.) on the sea campion. This species, and *Eupithecia venosata* (Fab.) were to be had in all localities where they were sought among the foodplant. On Burray, I caught *Luperina testacea* (D. & S.), which was new to Orkney. The dunes were covered in places with *Galium verum* Linn., which was searched on hands and knees for young larvae of *Hyles gallii* (Rott.). Three moths had been taken on successive nights in Kirkwall in early July by a friend of Ian's, but we had no luck.

Another high spot for all of us was a visit to Hoy on a beautifully sunny day. The ladies basked in the sun and supplied food, the youngsters explored, and the entomologists clambered about the heavily wooded, steep sided Berriedale, searching and beating for larvae. It was incredible to come across well grown birch and aspen tucked away in this ravine, and we regretted the spot was so inaccessible. We returned laden with larvae, including *Achlya flavicornis* (Linn.), *Hydriomena ruberata* (Freyer) and *Acleris hastiana* (Linn.), the last two species on *Salix aurita* Linn. A colony of half grown Puss Moth larvae was also found on this plant.

We started the long journey home on August 16th, gazing wistfully back on the receding islands with memories of their harriers and short-eared owls and innumerable other happy recollections, and where those interesting forms of *Xestia castanea* (Esp.) and *Paradiarsia glareosa* (Esp.) were just starting to emerge, and we made a promise to come back.

There was not time for collecting during the drive south, but we noticed a lot of very promising country along the north coast, and in some of the Sutherland glens.

A weekend visit to Portland on August 31st was abortive so far as migrant birds went — the previous week there had been several rare warblers, Woodchat Shrike and others to tempt us, but they had gone, and there was not even a Firecrest. The night was cool and windy, but I was somewhat mollified when a very fresh *Epischnia bankesiella* Rich. came in to the actinic, which I had set up among a mass of *Inula* in a sheltered hollow in the cliffs. Quite a lot of common moths came along, but *Leucochlaena oditis* (Hübner) was the only other local speciality, and there were no migrants.

On September 15th, we made a rendezvous with Mr Austin Richardson in the Chilterns to look for larvae of *emortualis*, and though we found evidence of their nibbling we got no larvae, and supposed we were too late.

The last entomological excursion of the season was to East Dean to stay with my in-laws again. Everybody seemed to be making for Eastbourne when we drove down on the

Friday evening, and we arrived with nerves somewhat frayed. The evening, or what was left of it, was still and warm, and I got the trap set up in the garden and *then* said, "Hello". In the morning it was full of moths, and many were settled on the lawn and on nearby bushes. Commonest among 30 species were *Agrochola lychnidis* (D. & S.) (217), *Omphaloscelis lunosa* (Haw.) (113), *Eumichtis lichenea* (Hübner.) (56) and *Lithophane leautieri* (Boisd.) (14). The next night, which was humid following a heavy thunderstorm, produced even more moths. I counted 268 *lunosa* and 240 *lichenea*, and there were 19 *leautieri*, and there had been a migration, as was evidenced by the presence of *Uresiphita limbalis* (D. & S.), *Cyclophora puppillaria* (Hübner.), *Orthonama obstipata* (Fab.) and a few *gamma* and *saucia*. After this, I felt the time was ripe to turn to birdwatching again, and I saw no more moths apart from a few *Ptilophora plumigera* (D. & S.) on November 1st, in the Chilterns.

## Some Records of Craneflies for 1973

By E. G. HANCOCK

Department of Natural History, Bolton Museum, Civic Centre,  
Bolton

The lists which follow are complete observation and capture records for the localities given. The selection of these lists to the exclusion of those from all the other sites visited in 1973 is based on the interest of some of the species present and the potential which is felt these sites hold for further recording. For example, one trip to a quarry near Ingleton yielded *Dicranota guerini* Zetterstedt, an insect with a restricted distribution in England and local in habit. The sand-dune records are very scanty but indicate that the habitats present in the dunes support rare species even in the South Lancashire system which is greatly exposed to public pressure and where developments encroach with a frightening regularity.

North Wales contains such a vast area for study that one has to be selective not only in presenting lists but also in sites visited for there are not enough weekends in the season to go to all the attractive-looking places. Therefore, a montane area near Beddgelert and an isolated wooded valley south of Llangollen have been selected. The former did not contain many species at very high altitudes but the weather at the time of the visits was not very good. *Tipula subnodicornis* Zett., was abundant over the marshes and tarns. *Molophilus ater* Meigen was an interesting capture being flightless and restricted to early in the year. The area around the village of Pandy has become a favourite collecting locality. There is a disused granite quarry and native woodland with the river Ceiriog and streams and seepages draining into it. It holds many niches for

aquatic and semi-aquatic insects as well as the usual terrestrial species.

The records presented include data from A. E. Stubbs and A. M. Hutson to whom I am grateful for the lists they made.

### South Lancashire Dune System

Infrequent visits to parts of the open dunes show that a number of interesting species occur here. The two sites visited in 1973 are Birkdale (SD (34) 3013) and Hightown (SD (34) 2902), but the latter is a sad remnant of what was once an area of the same quality as that north of Ainsdale NNR. Obviously, the area will repay further visits. B=Birkdale. H=Hightown.

*Nephrotoma appendiculata* Pierre, ♂, B, 30.vi. *N. cornicina* L., ♀, B, 5.viii. *N. quadristriata* Schummel, 7♂♂, 1♀, B, 5.viii; first recorded in 1923 by H. Britten but no records in interim period (Kidd & Brindle, 1959). *Tipula solstitialis* Westhoff, 1♀, 1♂, B, 5.viii. *T. lateralis* Meigen, abundant in Dunes, v, vi, viii. *T. oleracea* L., common, v, viii, B. *T. varipennis* Mg., 2♂♂, B, 16.v. *Limonia chorea* Mg., ♂, H, 2.viii. *L. morio* F., ♂, 30.vi ♂, 5.viii, B. *L. modesta* Mg., 2♂♂, H, 2.x. *L. ventralis* Schummel, ♂, B, 5.viii. *Helius pallirostris* Edwards, ♂, B, 30.vi; this species is noted here for the first time in Lancashire, there are also specimens in the Manchester Museum collected by A. Brindle in 1965. *Pedicia immaculata* Mg., 3♂♂, B, 16.vi. *Limnophila ferruginea* Mg., ♂, H, 2.x. *Gonomyia tenella* Tonnoir, common v, viii, B. *Erioptera pilipes* F., ♂, B, 16.v. *E. trivialis* Mg., B, viii; H, x. *E. vicina* Tonnoir, common, B, 5.viii. *Ormosia hederæ* Curtis, ♂, B, 16.v; 3♂♂, H, 2.x. *Molophilus griseus* Mg., ♂, B, 5.viii, coll. A. M. Hutson. *M. obscurus* Mg., common, B, 5.viii. *M. pleuralis* de Meijere, ♂, B, 5.viii, coll. A. M. Hutson. *Trichocera hiemalis* Degeer, 2♂♂, H, 2.x. *T. regelationis* L., 2♂♂, H, 2.x.

### White Scar Quarries, near Ingleton, Yorks (SD 718753). 7.x.1973.

*Tipula czezi* de Jon<sup>g</sup>, abundant. *T. paaana* Mg., abundant. *T. staegeri* Nielsen, ♂, ♀. *T. marmorata* Mg., 2♂♂. *Dicranomyia autumnalis* Staeger, ♀. *D. didyma* Mg., abundant. *Trycyphona immaculata* Mg., ♂. *Dicranota querini* Zetterstedt, 3♂♂, 3♀♀. *D. bimaculata* Schummel, 2♂♂, 3♀♀. *Erioptera trivialis* Mg., ♀, 6♂♂. *E. diuturna* Walker, 5♂♂, 2♀♀. *E. fuscipennis* Mg., ♂.

### Llyn Dinas, near Beddgelert, Caerns. (SH 6749). 28.iv.1973.

*Tipula vittata* Mg., 2♂♂. *T. subnodicornis* Zett., abundant. *T. lateralis* Mg., ♂. *Dicranomyia chorea* Mg., common. *Tricyphona immaculata* Mg., ♂, ♀. *Erioptera trivialis* Mg., ♂. *Molophilus ater* Mg., ♂. *Sylvicola fenestralis* Scopoli, ♂.

Cnicht, near Llyn Dinas, 1800 ft. (SH 655480), 1.ix.1973. *Ormosia pseudosimilis* Lundstroem, ♂.

Pandy, near Glyn Ceiriog, Debighs. (SJ 1935), 1973



(except where stated).

*Nephrotoma appendiculata* Pierre, 2.vi, common. *N. flavescens* L., 1.vii, ♂, G. Y. McInnes. *N. quadrifaria* Mg., 2.vi. ♂. *Dolichopeza albipes* Stroem, 2.vi, ♂. *Tipula fulvipennis* Degeer, 26.viii, ♂. *T. marmorata* Mg., 15.x.1972, A. E. Stubbs. *T. meigeni* Mannheims, 2.vi., ♂. *T. paludosa* Mg., 26.viii, common. *T. rufina* Mg., 11.vi.1974, ♂. *T. scripta* Mg., 26.viii. ♀. *T. signata* Staeg., 15.x.1972, A. E. Stubbs. *T. staegeri* Niels. 15.x.1972, A. E. Stubbs. *T. variicornis* Schumm. 11.v.1974, ♀. *T. varipennis* Mg., 2.vi, ♂. *T. vittata* Mg., 11.v.1974, ♂. *Cylindrotoma distinctissima* Mg., 26.viii, common. *Limonia chorea* Mg., common at all visits. *L. didyma* Mg., 15.x.1972, A. E. Stubbs. *L. duplicata* Doane, 2.vi, 26.viii, ♀, 2♂♂. *L. flavipes* F., 2.vi, common. *L. fusca* Mg., 24.vi, ♂. *L. macrostigma* Schumm., 2.vi, ♂. *L. mitis* f. *lutea* Mg., 2.vi, ♂. *L. modesta* Mg., 26.viii, ♂. *L. morio* F., 26.viii, ♂. *L. nubeculosa* L., common at all visits. *L. stigma* Mg., 26.viii, 2♀♀, *L. stigmatica* Mg., 26.viii, 2♂♂. *L. tripunctata* F., 2.vi, common. *Pedicia immaculata* Mg., 24.vi, common. *P. occulta* Mg., 2.vi, ♂. *P. rivosal* L., 24.vi, ♂. *P. straminea* Mg., 2.vi, 26.viii, ♀, ♂. *Dicranota subtilis* Loew, 15.x.1972, A. E. Stubbs. *Ula mollissima* Haliday, 20.iv. 1974, ♀, J. I. Harris. *Paradelphomyia ecalceratus* Edwards, 15.x.1972, A. E. Stubbs. *Limnophila apicata* Loew, 1.vii, ♂, J. I. Harris. *L. ferruginea*, Mg., 26.viii, ♂. *L. maculata* Mg., 26.viii, ♂ (typical). *L. nemoralis* Mg., 26.viii, 2♂♂ (typical). *L. submarmorata* Verral, 2.vi, ♂ (typical). *Gnomyia simplex* Tonnoir, 2.vi. abundant locally. *Lipsothrix remota* Walker, 11.v.1974, ♂. *Erioptera fuscipennis* Mg., 24.vi, several. *E. lutea* Mg. f. *taenionata* Mg., common at most visits. *E. trivialis* Mg., 2.vi, ♂. *Cheilotrichia cinerascens* Mg., common. *Ormosia nodulosa* Macquart, 11.v.1974, ♂. *Molophilus pusillus* Edwards. 26.viii, ♂♂ common. *Silvicola punctatus* F., 11.v.1974, ♂, ♀. *S. fenestralis* Scopoli, 11.v.1974, ♀.

## Observing Butterflies at Ayers Rock, Northern Territory, Australia, Nov. 13-15, 1973

By REV. P. C. HAWKER, F.S.A.

St. Botolph's Vicarage, South Park, Lincoln.

Ayers Rock is now a tourist MUST. It stands some 850 miles W.N.W. of Adelaide and some 200 miles S.W. of Alice Springs. It is really in the bush and has only been regularly visited in the last few years. Opal Air does a direct service from Adelaide and there are road and air trips from Alice Springs.

This remarkable limestone rock is 600 ft. high and some 5 miles round and it is claimed that it is the largest monolith in the world. The Aborigines know it as Uluru and to them it is a most holy place.

We flew up by Opal and back the same way stopping at the Opal Mining centre of Cooper Pedy en route, and just

catching a glimpse of the underground homes where the locals live to keep cool. On the way up we also called at a remote Government School in the Warburton ranges.

I had the good fortune to be in the co-pilot's seat during this time, for on leaving the Warburtons, Ayers Rock stood out on the horizon with the Olgas to the west of it. After miles and miles of bush with little scrub the sight of this vast rock was spectacular.

We were soon taken to the Inland Motel (run by 'Lynn of the Inland') with a well stocked bar, a swimming pool, and air-conditioning. That evening we photographed the rock at sunset and next morning at sunrise. After breakfast we decided not to climb the rock (had we not flown over it?) but to walk round it instead. 1973 had been a wet year in the bush and there were numerous pools by the rock. It was very hot and the dry thorns on the way there were somewhat trying. But the several caves with Aborigine paintings alone would have made this trip worth while.

Quite the most outstanding things entomologically were the vast hoards of *Pyrameis cardui kershawi* (McCoy). These insects . . . and I had noted the same type of activity amongst them in the National Park nr. Adelaide . . . acted not unlike the English Speckled Wood. They liked shaded area, and did not fly very fast or far. Yet they were everywhere. On the dark side of trees. On damp pieces of soil, on the side of the Rock itself. Along billabongs (water courses). Not very observable till one was right on top of them. But the number!

A few *Terias smilax* (Donovan) were about. *Zizera labradus labradus* (Godart) was reasonably numerous. A few *Lampides damoetes* (Fab.) were seen. By some of the pools of water (especially at one very sacred pool) a few *Papilio demoleus sthenelus* (Macleay) were flying. One single specimen of *Candalides* (probably *heathi* Cox) was seen. And there were quite a number of specimens of *Danaida chrysippus petilia* (Stoll).

Another feature of the bushes round the rock was the large number of delightful small finches. Flies were all too numerous and we did see a number of grasshoppers and one possible locust.

Never has beer tasted so good as it was when we at last reached the motel again after our 6 mile walk. And we rested in the afternoon. But the memory of all those *cardui* will remain with me.

#### CORRIGENDA

Reference "The Butterflies of the Shimba Hills" by D. G. Sevastopulo (*antea*: 85: 263-266, 86: 18-23):—

p. 263 line 2 from bottom for "*limnicæ*" read "*limniacæ*".

p. 266 line 20 for "*Papilionæ*" read "*Caesalpinaceæ*".

p. 20 line 9 from bottom for "*Sideroxyon*" read "*Sideroxylon*".

p. 21 line 9 from bottom for "*Salmis*" read "*Salamis*".

p. 22 line 5 for "Feburary" read "February".

# A Note on some Water Bugs (Hemiptera-Heteroptera) Collected on Cape Clear Island, West Cork

By T. K. MCCARTHY

Department of Zoology, University College, Cork, Ireland.

Cape Clear Island, lying off the south west corner of the Irish mainland is apart from the Fastnet Rock, the most southerly point of Ireland. The island is approximately 1,500 acres in extent and composed almost entirely of Old Red Sandstone. The climate is exceptionally mild, though there is a little shelter to protect most of the island from the effects of salt spray. The islands aquatic habitats consist of an eleven acre mildly brackish lake, L. Errul, some reed beds with a series of small pools, Ballieragh bogs, and several wells and small streams. A considerable volume of information has accumulated in recent years regarding the flora and fauna of the island (Sharrock, 1973). However, it appears that the aquatic Heteroptera have not been studied. Likewise few, if any, records exist for these insects from any of the other Irish offshore islands. Thus it is felt that the following records, made largely in October 1973, will be of interest. The nomenclature is that used by Macan (1964) and localities may be identified more precisely by reference to Sharrock (1973) though all are referable to the 10 km square V92 on the Irish Grid.

**HYDROMETRIDAE:** *Hydrometra stagnomum* (L.), Shore-line L. Errul. **VELIIDAE:** *Velia* sp., 1972, Well near L. Errul; *Microvelia reticulata* (Burm.), Central Bog. **GERRIDAE:** *Gerris odontogaster* (Zett.), West Bog and Central Bog. **NEPIDAE:** *Nepa cinerea* L., Shore-line L. Errul. **PLEIDAE:** *Plea leachii* Mac Greg., Central Bog. **NOTONECTIDAE:** *Notonecta glauca* L., West Bog; *N. obliqua* Thunb., East Bog. **CORIXIDAE:** *Corixa punctata* (Illig.), Central and East Bog; *C. affinis* Leach, Central and East Bog; *Hesperocorixa linnei* (Fieb.), West Bog; *H. castanea* (Thoms.), West Bog and Central Bog; *Sigara stagnalis* (Leach), Central Bog; *S. nigrolineata* (Fieb.), West and East Bog; *S. semistriata* (Fieb.), Central Bog; *S. scottii* (D. & S.), West Bog; *Callicorixa praeusta* (Fieb.), Central Bog and East Bog. **HEBRIDAE:** *Hebrus ruficeps* (Thoms.), West Bog.

Though I recognise this list is incomplete, I feel that these preliminary observations do indicate a paucity of species when contrasted with the adjoining mainland. However, since many of the species as yet unrecorded from here are known to undertake extensive migrations (Southwood, 1956), it is probable that the islands water bug fauna is limited by the restricted environmental mosaic and the climate of the island rather than by opportunities for dispersal.

## Interspecific Competition in Butterflies

By D. G. SEVASTOPULO, F.R.E.S.

(c/o Reynolds & Co., P.O. Box 95026, Mombasa, Kenya)

I refer to Dr Luckens' short paper under this heading (1974, *Entomologist's Record*, **86**: 71-72) and to his last paragraph in particular. I am always troubled when a situation exists for which there appears to be no rational explanation. Dr Luckens (1971, *Entomologist's Record*, **83**: 261-262) refers to *Argynnis aglaia* L. displacing *A. cydippe* L. "by natural competition". Baron de Worms (1972, *Entomologist's Record*, **84**: 219-223) writes of *Papilio andraemon* Hbn. displacing "several other species of *Papilio* in some regions of the island (i.e. Jamaica) as the larvae infest citrus trees". I simply pose the very ordinary question "How?" Surely this is the basis of all science.

Dr Luckens' suggestion of the need for *lebensraum* does not satisfy me. In my garden in Calcutta three species of citrus-feeding *Papilio* were present—*polytes* L., *demoleus* L. and *polymnestor* Cr. — the two former common, the latter rare, but there was no sign of one displacing another. Here in East Africa the same situation exists, in my garden there are three citrus-feeding *Papilio*—*demodocus* Esp. (common), *niraeus* L. (uncommon) and *dardanus* Brown (rare); in a patch of forest in the Shimba Hills the above three species are equally common with two others, *ophidicephalus* Ob. and *constantinus* Ward, rather less so. These Rutaceae-feeding *Papilio*s are not aggressive either towards their own kind or to other butterflies, and if three or four species can co-exist peacefully in India and Kenya, why should *andraemon* displace its congeners in Jamaica?

There are butterflies that do appear to require *lebensraum*, to use Dr Luckens' term, many of the *Charaxes* like to settle on a commanding twig and from there launch attacks on other passing butterflies, but here again my garden harbours five species, and the patch of Shimba Hills forest at least nine, of comparable size and habits, although they do not all have the same food-plant.

I can, however, put forward a possible explanation for the displacement of the native American *Pieris napi* L. and *P. protodice* Bsd. & Lec. by the introduced *P. rapae* L. It is true that all feed on various species of Cruciferae, but Bowden's experiments in hybridising would appear to indicate that the American species, at any rate, have very definite preferences. If the introduced *rapae* emerge a little earlier than the native species, possibly lay more eggs, have fewer parasites (at the beginning at any rate), and have a wider range of food-plant, a situation could easily arise where the native species had its preferred food-plant much reduced, or even wiped out, by the more prolific and earlier emerging introduction, which would continue to thrive on food-plants unacceptable to the native species.



*Erebia zapateri* ab. *pseudoneoridas* ab. nov.

By M. J. PERCEVAL

Holmesdale Cottage, North Holmwood, Dorking, Surrey

*Erebia zapateri* Obth. is restricted to the Montes Universales, a limited area in Teruel and Cuenca, Central Spain. The species varies very little. One form and a few minor aberrations have been named (Warren 1936). I consider this new aberration worth describing, particularly in view of the suggestion that this species and the much more widespread *Erebia neoridas* Bdv. may be conspecific (Manley and Allcard 1970).

The female Holotype was taken on 9th August 1973 at Bronchaes, Teruel, and is in my collection.

*Forewings*: Upperside; In addition to the usual twin apical ocelli, there are two slightly smaller white pupilled ocelli in S2 and S3. Underside; an Additional white pupilled ocellus in S2 corresponding with the one on the upperside.

*Hindwings*: Upperside; three small white pupilled ocelli in S2, S3 and S4, enclosed in a red band divided by the nervures. Underside: normal.

If I had not seen this specimen taken and was unaware of its data, I would almost certainly have identified it as a rather bright specimen of *E. neoridas*. On both the upper and undersides it is virtually indistinguishable from some specimens of *E. neoridas*. Unfortunately the specimen, although fresh, is not in perfect condition. It was taken by my five year old son whose technique shows more enthusiasm than finesse.

I illustrate the specimen together with one of *E. neoridas* for comparison. Specimens of *E. neoridas* with all ocelli except the twin apical ones absent and thus resembling *E. zapateri*, have been named as ab. *margarita* Obth. Ab. *pseudoneoridas* now shows that this situation also exists in reverse with specimens of *E. zapateri* resembling *E. neoridas*.

## PLATE XIX

G) *Erebia zapateri* ab. *pseudoneoridas* ab. nov. female Holotype. Bronchaes, Teruel. 9th August 1973.

H) *Erebia neoridas* Bdv. female. Col der la Quillane, Pyrenees-Orientales. 26th August 1966.

## REFERENCES

- Manley, W. B. L. and Allcard, H. G., (1970). *A Field Guide to the Butterflies and Burnets of Spain*.  
Warren, B. C. S. (1936). *Monograph of the Genus Erebia*. London.

---

NEOLUCIA SERPENTATA (H.-S.) (LEP.: LYCAENIDAE).—A further find in our garden at Brighton near Adelaide was the common blue *Neolucia serpentata* H.-S. This was on 6th October 1973 and is an addition to my list (cf. *Ent. Rec.*, **85**: 189).—Rev. P. C. HAWKER, St Botolph's Vicarage, South Park, Lincoln.

## *Phaonia exoleta* Mg. (Diptera : Muscidae), New to Ireland

By MARTIN C. D. SPEIGHT

(Dept. of Zoology, Trinity College, Dublin, 2, Eire)

I am most grateful to Mr Adrian Pont (Brit. Mus. (N.H.)) for determining a long series of bred specimens from Howth Head, Co. Dublin (Irish grid. ref. 0.27/38) as belonging to this rare species. I collected these as puparia and full-grown larvae at the beginning of April 1973. They were found in tunnels in sodden wood on the "ceiling" (see diagram) of a large rot-hole in a live sycamore (*Acer pseudoplatanus*), in company with larvae of species of *Fannia* (Muscidae) and *Brachyopa* (Syrphidae). Apart from Chironomids, the only Dipterous larvae in evidence in the pool of water in the "bowl" of the rot-hole were of *Myiatropa florea* (L.) (Syrphidae). In Fonseca (1968) *Phaonia exoleta* is recorded in the British Isles only from central Wales and five scattered localities in England ranging North to Nottinghamshire. Fonseca mentions that it has been bred from rotten elm.

The larvae I collected pupated almost immediately and the flies then emerged between late April and the middle of May 1973. The sycamore containing the rot-hole is a large tree beside a path in more or less closed canopy mixed woodland, with old beech, pine and birch trees and a certain amount of fallen and rotten timber. The area is known to have been wooded for some hundred years, but the woodland is today largely artificial: there are patches of *Eucalyptus*, *Tilia platyphyllos* and *Castanea*, together with an understorey of *Rhododendron* and bamboo! Despite the incongruous array of exotic trees and shrubs, parts of these woods still possess a reasonably diverse and profuse deciduous-woodland ground flora, an unusual feature for woodland in Ireland, and indicative of continuous tree cover on the site for a considerable period of time. I have deposited specimens of *P. exoleta* from this series in the British Museum (London) and the National Museum (Dublin).

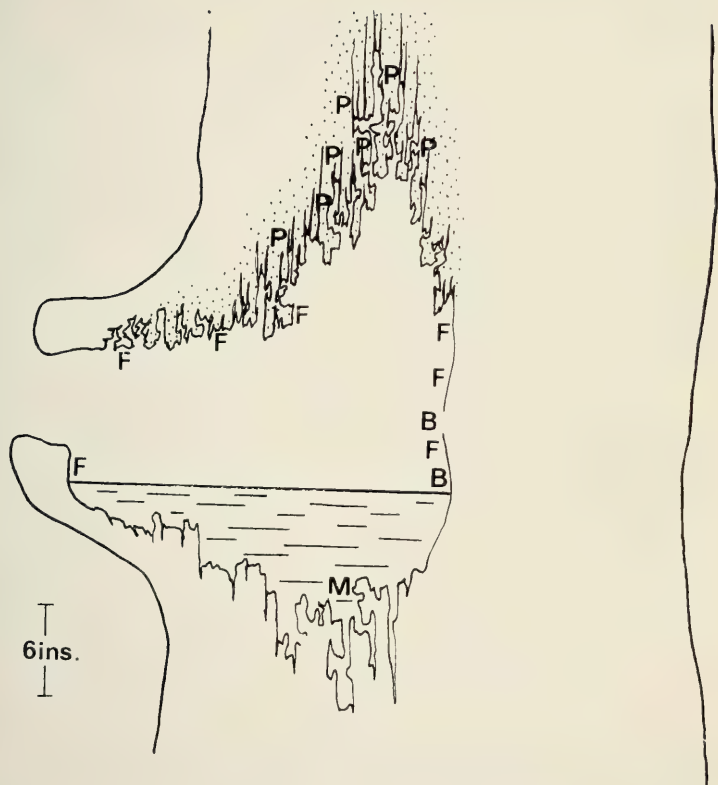
### Reference

Fonseca, E. C. M. (1968). Muscidae. *Handbooks for the Identification of British Insects*, 10 (4b). R. ent. Soc., London.

## Notes and Observations

ACHERONTIA ATROPOS L. IN KENT. — A single male *Acherontia atropos* L. was taken at M.V. light in Orlestone Woods, near Ham Street, on the night 22nd-23rd July 1974. The moth arrived at 2.30 a.m., the weather conditions being warm with slight drizzle and strong, gusty winds — P. A. SOKOLOFF, 26 Pinchbeck Road, Green Street Green, Orpington, Kent, 24.vii.1974.

PLATE XX



Diagram

Rot hole in Sycamore, showing distribution of Dipterous larvae mentioned in text

Key

B=*Brachyopa* sp. larvae (died before pupation); F=*Fannia* sp. indet. larvae and puparia; M=*Myiatropa florea* larvae; P=*Phaonia exoleta* larvae and puparia; :::: = areas of rotten wood, sodden due to seepage down within trunk, from above.





HYLES GALLII ROTT. IN CHESHIRE IN JUNE 1974. — On the 18th June 1974, Mr G. Kenyon found a male *Hyles gallii* Rott. (Bedstraw Hawkmoth) in perfect condition in an MV trap which we were operating at Disley in Cheshire.

Last year appears to have been an exceptionally good year for *H. gallii* and an examination of the *Entomologist's Record* reveals records of adults and larvae from localities as far apart as Cornwall and Argyllshire. The earliest record of an adult was on 16th July and most of the records come from the last two weeks in July. In previous years the end of July and early August also seem to be the normal time of appearance of this moth in Great Britain. Thus the early date of this present record and appearance of the specimen suggest that it had recently emerged from a pupa which had successfully overwintered in the locality. It is perhaps worth noting, however, that Newman (1965, *Hawkmoths of Great Britain and Europe*) points out that on the continent the moth is double-brooded and that whilst most of those found in Britain are of the second brood there are a few records from the last century of specimens being caught in May. Whilst the implication would appear to be that these specimens were migrants from the first brood it is of course possible that they too may have overwintered in this country.

In spite of the large number of records of *H. gallii* from Great Britain in 1973 it is interesting to note that no specimens of this or of other migrant Sphingids were caught in the eleven MV traps we were operating daily in the Greater Manchester area throughout the 1973 season as part of a survey of the frequency of melanic moths in the area. No further specimens of *H. gallii* have been found in the six other MV traps we are operating this year, three of these being within three and a half miles of the trap at Disley.—J. MUGGLETON and G. KENYON, Department of Zoology, University of Manchester, Manchester, M13 9PL.

BUTTERFLIES FEEDING ON ANTIGONON LEPTOSUS (POLYGONACEAE).—I was most interested to see that this plant was attractive to butterflies in Sri Lanka (F. M. G. Stammers, Sri Lanka, 1974, *Ent. Rec.*, 86: 56). This is a very popular plant with tropical gardeners, and my gardens in both India and East Africa have always had it growing in masses, but I cannot ever recall seeing butterflies feeding on it. My experience with the plant extends well over forty years. Other local entomologists all confirm that they do not consider *Antigonon* attractive to butterflies, and I wonder if there was not some other inconspicuous, but attractive, plant growing among the *Antigonon* which was the real attraction. *Antigonon* does not seem to be particularly attractive to bees. It seems to be quite scentless.—D. G. SEVASTOPULO, c/o Reynolds & Co., P.O. Box 95026, Mombasa, Kenya.

DAY FLYING DIPTERON TAKEN IN M.V. TRAP.— On 4th July 1974 I took a Bee-fly (*Bombylius discolor* Mikan) in my M.V. trap. I understand from Mr Alan Stubbs that day flying diptera are only occasionally reported as coming to M.V. traps and he cannot recall a previous record of its occurrence in this species. — L. W. SIGGS, Sungate, Football Green, Minstead, Lyndhurst, Hants.

SOME NOTES ON *CACOECEIMORPHA PRONUBANA* HÜBN. — The larvae of *Cacoecimorpha pronubana* Hubner, a species which is common in my Orpington garden, were noted in exceptional abundance during the early Spring of 1974. The larvae are normally most in evidence in the garden during July and August, feeding between the terminal leaves of Privet shoots (*Ligustrum vulgare*), or between spun-leaves of Ivy (*Hedera helix*) or *Buddleia davidii*. During February and early March 1974, large numbers of over-wintering larvae were discovered spinning in the terminal leaves of Lavender shoots (*Lavandula* sp.), and an ornamental *Veronica* sp. yielded 48 larvae from the 52 shoots on the plant. Of particular interest was a row of ten two year old *Chamaecyparis leylandii*. Every one of these tiny trees contained between two and nine *pronubana* larvae, but in this case the larvae were only found on the lateral shoots at ground level in rather inconspicuous spinnings about half way along the shoot. Both foliage and bark were consumed and all infested shoots subsequently died. Most of the larvae were removed, but six were left and protected by a muslin sleeve. All six had pupated by mid-March—four *in situ* and two within folds of muslin. The first imago was noted on April 18th, a rather early date for this species. One unusual observation was that from about fifty over-wintering larvae actually collected, not a single parasite was reared. — P. A. SOKOLOFF, 26 Pinchbeck Road, Green Street Green, Orpington, Kent, 24.vii.1974.

LYCAENA PHLAEAS L. AB. *RADIATA* TUTT IN THE ISLE OF WIGHT—I captured a female specimen of this aberration near Ventnor on 16th August 1974. It seems unlikely that ab. *radiata* has not previously been observed on the Island, but I have been unable to discover any previous record. The specimen appeared in the second brood of a restricted colony of the species. There had been a very good first brood of which I examined several hundred specimens but found no significant variation.—T. D. FEARNEHOUGH, 26 Green Lane, Shanklin.

## Current Literature

**Fresh Water Life** by John Clegg. X+283 pp., 16 coloured plates, 48 half tone photographs and 88 text illustrations. Frederick Warne, London. £6.

This fourth edition has been completely reset and revised to meet the needs of the more scientific reader without sacri-

ficing its appeal to those with a more general interest in Natural History. The line drawings are all new and there are additional colour plates and photographs. This book should prove especially useful to Vith Form and First Year degree students in the biological sciences. After a brief historical introduction and an outline of classification, the author gives a useful account of the chemical and physical factors in the environment. This is followed by the main subject of the book, a review of the plants and animals in their major taxonomic groups with emphasis on behavioral and structural adaptations. Though not intended as an identification manual, readers should be able to track down the family and sometimes the genus of their finds. This section is full of interesting material on habits and life histories. For reasons of space, some generalisations at the genera level are unfortunate. For example, the hoary legend of multiple fission following encystment in *Amoeba* has been resurrected in spite of the publications of McKinnon or Hyman.

There follows a chapter on techniques for studying freshwater life and a final very interesting section on freshwater biology in the service of mankind.

There is a useful bibliography and the book is well indexed and attractively bound.—E.H.W.

**Crop Pests in Tanzania and their Control** by **Eberhard Bohlen**. 142 pp. with 252 colour photos on 42 plates and 18 b/w text illusts. Verlag Paul Parey, Berlin. DM 64= approx. £11.

This slender handbook of tropical African crop pests will be found useful far beyond the borders of Tanzania. The presentation is excellent but impractical, in clear sanserif type on heavily glazed paper that becomes instantly self-adhesive when wet with rain, spray or sweat, and could be troublesome in the field. The fine collection of colour photographs of pests and their damage will be most appreciated by the reader with experience of the difficulties of insect macrophotography. It is a pity that the black and white illustrations in the second part of the book are poor by comparison. The text is well arranged, starting with brief accounts of the main pests in systematic order. General recommendations for chemical control in this section are useful, if sketchy, but occasionally misleading.

The second section deals with crops alphabetically and their pests systematically arranged. This will be the most useful part of the book to the farmers and extension workers that form its stated target audience. They will, however, be somewhat at sea in planning control programmes. In successive paragraphs one finds similar doses of the same insecticide recommended for different pests. If an application were to be made each time a pest is recognised, gross over-treatment could result. The book would have been much improved by a

set of spraying programmes, one for each crop, designed to provide the optimum control of its pests. A further deficiency is the lack of guidance on how to recognise a potentially "serious infestation".

The chapter on beneficial insects is two pages long and apart from a remark in the preface and a note in the glossary, represents the only concession to the concept of integrated control. The fourth chapter, on pesticides, gives the essential information on most of those in common use. Useful tables, the glossary, and a compact index, complete the book.

There are a few minor mistakes in the names of insects, but these scarcely detract from the general impression of a well-ordered and valuable book. The only deterrent to purchase will be the price which at present exchange rates is ludicrously high for so small a volume.—W. A. SANDS.

## Obituary

**K. M. PENNINGTON, A.F.C., M.A., B.C.L., F.R.E.S. (1897-1974)**

Kenneth M. Pennington, the well-known South African Lepidopterist, died after a brief illness, in Pietermaritzburg, Natal, on January 23rd, 1974. He was born on September 25th, 1897, in Greytown, Natal, and was educated at Michaelhouse and Natal University, subsequently serving in the Royal Flying Corps in the First World War. When a pilot in Mesopotamia, he was awarded the Air Force Cross for a particularly hazardous flight he successfully made; but was later shot down by the Turks, and was involved in a second crash within 20 minutes of being rescued by another pilot.

On returning to South Africa at the end of the war he became engaged to Ruth Frampton, of Greytown, and after his marriage took up a Rhodes Scholarship, and obtained his B.C.L. at Oxford. He then practised as a solicitor and barrister, for a period, in Pietermaritzburg. Although doing very well in his profession, he decided after two years to return to his old school, Michaelhouse, as a schoolmaster, and he remained there for 35 years until his retirement in 1958. He spent the last 15 years of his life very happily, with his wife, on his small farm, "Yellowwoods", in most beautiful surroundings in the Natal Midlands, and was able to continue to devote much of his time here to the butterflies of this region which is so rich in insect life.

Ken Pennington was one of the most talented of the half dozen amateur entomologists who have so greatly increased our knowledge of Southern African butterflies during the last 50 years.

He was probably the most expert, and certainly the most widely travelled collector in Southern Africa: a man who seized on the opportunities offered by motor travel and who utilized them to the full in order, not only to explore new areas as they were opened up, but also to re-investigate known





PLATE XXI



**K. M. Pennington and youthful admirer**

localities all over the sub-continent. He undertook long journeys to Mozambique, Rhodesia, Botswana and South West Africa and, in addition, covered most of South Africa itself. One factor which contributed to the great success of these trips was his remarkable flair in selecting worth-while localities for intensive investigation and it is a measure of his skill that many of his discoveries were made in supposedly well collected areas.

The collection which he built up, beginning in 1912 under the guidance of his father, Archdeacon G. E. Pennington, was without doubt the most complete private collection of Southern African butterflies. Yet he was much more than a collector: he added greatly to our knowledge of their life histories, habits and geographical distributions.

In 1966 his contributions to Southern African entomology were marked by his election as President of the Entomological Society of Southern Africa.

The wide scattering of species which carry the specific epithet *penningtoni* can give only a hint of the full number of new species which have been described as a result of his activities. Material recognised as new by him has formed the basis of new species descriptions by N. D. Riley, Brig. W. H. Evans, N. H. Bennett and G. E. Tite of the British Museum of Natural History; H. Stempffer of the Paris Museum; Dr G. van Son of the Transvaal Museum and C. G. C. Dickson of Cape Town. From 1948 onwards he himself began describing increasing numbers of new species and he named some 27 of these as well as 2 new subspecies. His taxonomic judgment was sound, and despite the fact that the bulk of his descriptions have to do with the difficult lycaenid genera *Thestor*, *Poecilmitis* and *Lepidochrysops*, there is little doubt that the new taxa which he defined will stand the test of time.

Ken Pennington was always a moderate collector and he was never guilty of capturing more specimens than were necessary to represent the species in his collection. Nevertheless he was always generous with his material and would immediately respond to requests for specimens made by other workers in connection with taxonomic studies. He was instrumental in encouraging and helping many aspiring young entomologists.

When one considers the breadth of his entomological achievements it is difficult to realise that they represent only one small facet of the life of this remarkable man. In his capacity as a master at Michaelhouse he will be remembered with great affection by many hundreds of boys who came under his influence. A man of exceptional integrity and great personal charm he set an example of service which few other schoolmasters can ever have matched.

K. M. Pennington is survived by his wife Ruth, his daughter Dawn and son Rex (now Rector of Michaelhouse); we extend our sincere and deep sympathy to them in their loss.

C.B.C., Salisbury, Rhodesia.

## ENTOMOLOGICAL PUBLICATIONS OF K. M. PENNINGTON

- 1940 Notes on early stages and distribution of some rare South African butterflies. *J. ent. Soc. sth. Afr.*, **3**: 128-130.
- 1946 Notes on some rare South African butterflies. *J. ent. Soc. sth. Afr.*, **9**: 20-27.
- 1948 Two new species of Lycaenidae (Lepidoptera, Rhopalocera) from South Africa. *J. ent. Soc. sth. Afr.*, **10**: 164-169.
- 1951 Description of female of *Lepidochrysops swanepoeli* Penn. (Lepidoptera, Rhopalocera) and variation in male. *J. ent. Soc. sth. Afr.*, **14**: 148-149.
- 1951 Note on *Lepidochrysops hypopolia* Trimen. *J. ent. Soc. sth. Afr.*, **14**: 201.
- 1952 Notes on the distribution of some South African butterflies. *J. ent. Soc. sth. Afr.*, **15**: 90-95.
- 1953 New species and subspecies and other additions to the butterflies of Southern Africa, together with new records of little known species. *J. ent. Soc. sth. Afr.*, **16**: 94-111.
- 1956 A new species of *Thestor* Hübner (Lepidoptera, Lycaenidae) from the Western Cape Province and notes on the life history of *Desmolycaena mazoensis* Trimen. *J. ent. Soc. sth. Afr.*, **19**: 33-36.
- 1962 Descriptions of a new *Neptis*, new Lycaenidae and records of rare species and additions to the list of Southern African Rhopalocera (Lepidoptera). *J. ent. Soc. sth. Afr.*, **25**: 266-286.
- 1963 A check list of the butterflies of Natal and Zululand. *Durban Mus. Nov.*, **7**: 27-70.
- 1967 Descriptions of two new species of *Poecilmitis* Butler (Lepidoptera: Lycaenidae). *J. ent. Soc. sth. Afr.*, **29**: 121-123.
- 1967 The progress in our knowledge of the Rhopalocera (Lepidoptera) of Southern Africa, and data on the great migration of *Catopsilia florella* Fabricius in 1966. *J. ent. Soc. sth. Afr.*, **30**: 121-125.
- 1967 A new species of *Lepidochrysops* Hedicke from the South Western Cape and a new species of *Poecilmitis* Butler from the North Eastern Cape, (Lepidoptera, Rhopalocera, Lycaenidae). *Novos Taxos Ent.*, **51**: 1-9.
- 1968 A new species of *Poecilmitis* Butler (Rhopalocera) from the South Western Cape. *Novos Taxos Ent.*, **56**: 1-8.
- 1970 A new species of *Lepidochrysops* Hedicke from the South-Western Cape (Lepidoptera, Rhopalocera, Lycaenidae). *Ann. Natal. Mus.* **20**: 377-379.
- 1970 A new species of *Stigionympha* van Son from Namaqualand (Lepidoptera, Rhopalocera, Satyrinae). *Novos Taxos Ent.*, **80**: 1-5.
- 1971 A new species of *Thestor* Hübner (Lepidoptera, Lycaenidae) from the Southern Cape. *Novos Taxos Ent.*, **95**: 1-7.





## **Exotic Entomological Specimens**

**LEPIDOPTERA — COLEOPTERA — MISCELLANEOUS  
INSECTS OF THE FINEST QUALITY WITH DATA**

20 page Illustrated Catalogue, 20p

**LIVESTOCK** — please send 15p for current catalogue of Ova,  
Larvae, Pupae, Cocoons, etc.

**R. N. BAXTER**

**16 BECTIVE ROAD, FOREST GATE, LONDON, E7 0DP.  
ENGLAND**

*FOR A PERSONAL AND INTERESTED SERVICE*

In your replies please mention "The Entomologist's Record"

## **ENTOMOLOGICAL CABINETS**

**Ten Drawer Unit Insect Sections**

---

*Sole manufacturers of the "Hill" Interchangeable  
Unit System formerly produced by J. J. Hill & Son Ltd.*

---

**R. Cattle, Limited**

*Precision Woodworkers*

P.O. BOX NO. 1

**Oxford Road, Gerrards Cross, Bucks.**

**Tel. Gerrards Cross 87131 (4 lines)**



# IMAGO BUTTERFLIES

LEPIDOPTERA SUPPLY & RESEARCH SPECIALISTS

Suppliers of Livestock — Exotic and European  
Over forty species listed

Plus prospective list of species we hope to supply in the near future  
General Catalogue available on receipt of 30p (Overseas \$1)

This includes subscription to our annual mailing lists

---

62 HIGH STREET, CROYDON, SURREY, ENGLAND

Please mention the Entomologist's Record

---

## FOR THE ENTOMOLOGIST

Apparatus, Books, Cabinets and Set Specimens

Price lists of the above are issued from time to time so if you  
would like to receive regular issues please send me a postcard  
stating your interests

---

**L. CHRISTIE**

137 Gleneldon Road, Streatham, London, S.W.16, 2BQ, England

(Postal business only)

*Official agent for publications of the Amateur Entomologist's  
Society*

---

**the BUTTERFLY FARM LTD. (Founded 1894)**

**Bilsington, Ashford, Kent England TN25 7JW. Tel. Ham St. 2513**

---

As the oldest farm in the world we are justly proud of our reputation  
as suppliers of the finest entomological materials.

For livestock and preserved specimens from all over the world; books  
new or old; breeding, storage and collecting equipment; educational dis-  
plays, please write for lists and details of our Mailing Index.

We urgently need suppliers of surplus collections, books and  
cabinets, and also reliable suppliers of livestock.

Visitors especially welcome to look around *the Butterfly Farm*, please  
phone in advance. See our living and museum displays and our British  
Wildlife Sanctuary—to which a small charge will go.

---

---

## THE AMATEUR ENTOMOLOGISTS' SOCIETY

---

The Society was founded in 1935 to cater especially for the younger or less experienced Entomologist.

For full details of publications and activities, please write (enclosing 3p stamp to cover postage) to:—**R. D. HILLIARD**, Hon. Advertising Secretary, A.E.S., 18 Golf Close, Stanmore, Middlesex.

---

---

## BRITISH NATURALISTS' ASSOCIATION



has twenty active branches in Britain and a world-wide membership. Its official organ, *Country-Side* (published three times a year), is the oldest-established British magazine devoted to general natural history

Membership subscription 75p per annum

*Full details and application form obtainable from:*

**B.N.A., 'Willowfield', Boyneswood Road, Four Marks, Alton, Hants**

---

---

## THE NATURALIST (founded 1875)

*A Quarterly Illustrated Journal of Natural History*

---

**Edited by W. A. SLEDGE, Ph.D., B.Sc.**

Annual subscription: £2.00 (post free)

Single numbers 50p

---

*Separates of the collected instalments of the:—*

### **LEPIDOPTERA OF YORKSHIRE (Macrolepidoptera)**

which appeared serially in *The Naturalist* (1967-1970) are also available on application. Price 50p, plus 4p postage

**The Editor of the Naturalist,**

**Department of Botany, The University, Leeds, LS2, 9JT**

---

# AURELIAN BOOKS

---

Antiquarian, Recent and New Books on Insects, Plants, Birds, Mammals and General Natural History bought and supplied

*Libraries purchased — Catalogues issued — Personal requirements searched for. Please advise us of your wants.*

Write or telephone

**AURELIAN BOOKS, Tumbledown Dick's, Green Tye,  
Much Hadham, Hertfordshire.**

**Telephone: Much Hadham 2676**

**POSTAL BUSINESS ONLY**



---

## EXCHANGES AND WANTS

*For Sale.*—Separates of "Emmet's Notes on some of the British Nepticulidae". Price 35p per copy. Printed covers for the collection of 5 parts.—Apply to S. N. A. Jacobs, 54 Hayes Lane, Bromley BR2 9EE, Kent.

*Back numbers.*—Our supplies of certain back numbers are now a little reduced and we would be willing to buy in a few copies of Vols.: 75, 77, 79, 82 and 83 at subscription rates. Due to an error there are now no further stocks of the January 1973 issue, we would therefore be indebted to anyone who could part with this issue.—S. N. A. Jacobs, 54 Hayes Lane, Bromley, Kent.

*The Maidstone Museum* have recently set up a Kent Biological Archives and Record Centre, which can now receive records based on the tetrad system (2 Km. sq.), for all insect orders. In particular, a scheme is being set up to record both Macro and Microlepidoptera from 1971 onwards. This is to run in parallel with the very successful plant scheme. The records will be available to any serious student of the Fauna or Flora of Kent. This ambitious scheme obviously must enlist the help of as many resident and visiting Lepidopterists as possible. For further information, please write to: S. E. Whitebread, 2 Twin Cottage, Grove Farm, Higham, Nr. Rochester, Kent, ME3 7NX. Records for other insect orders should be sent to Mr E. Philp at the Maidstone Museum, St Faith's Street, Maidstone, Kent.

*Offers wanted* for the bound volumes 9, 10 and 12 of the Entomologist Record. Replies to Colin Pratt, 5 View Road, Peacehaven, Newhaven. Sussex.

*Wanted.* — Samples of *Apamea monoglypha* (Dark Arches) from MV traps, to aid an investigation into the frequency of melanism in this species. We would like to obtain random samples, caught during the 1974 season, from any locality in the British Isles. If you think you might be able to help and would like further details please write to — J. Muggleton, Dept. of Zoology, University of Manchester, Manchester M13 9PL.

---

---

# THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

(Founded by J. W. TUTT on 15th April 1890)

---

*The following gentlemen act as Honorary Consultants to the magazine:*

Orthoptera: D. K. Mc. E. KEVAN, Ph.D., B.Sc., F.R.E.S., Coleoptera: A. A. ALLEN, B.Sc.; Diptera: E. C. M. d'ASSIS-FONSECA, F.R.E.S.

---

## TO OUR CONTRIBUTORS

All material for the TEXT of the magazine must be sent to the EDITOR at St Teresa, 1 Hardcourts Close, West Wickham, Kent.

ADVERTISEMENTS, EXCHANGES and WANTS to: E. H. WILD, L. Inst. Biol., 112 Foxearth Road, Selsdon, Croydon, Surrey, CR2 8EF. Specimen copies supplied by Mr Wild on payment of 40p or sterling equivalent which will be taken into account if the person in question becomes a full subscriber.

Changes of address, also enquiries regarding Back Numbers, Volumes and Sets of Volumes, to: S. N. A. JACOBS, 54 Hayes Lane, Bromley, BR2 9EE, Kent.

Subscriptions should be sent to the Treasurer, P. J. RENSHAW, 53 Links Road, West Wickham, Kent BR4 0QN, England.

REPRINTS: 25 copies, taken straight from the magazine are sent gratis to contributors of articles; these may contain extraneous matter. More formal reprints from re-set type may still be had at cost price, and orders for these should be given, at the latest, with the return to the Editor of the corrected proof.

ILLUSTRATIONS are inserted on condition that the AUTHOR DEFRAYS THE COST.

Contributors are requested not to send us Notes or Articles which they are sending to other magazines.

All reasonable care is taken of MSS, photographs, drawings, maps, etc., but the Editor and his staff cannot hold themselves responsible for any loss or damage.

---

## SPECIAL NOTICE

The Editor would be willing to consider the purchase of a limited number of certain back issues.

---

---

# SARUMAN

(incorporating the Butterfly Centre)

Business Reg. No. 1685058

V.A.T. Reg. No. 210 4043 36



Specialists in British and World Lepidoptera and Entomological  
Equipment — Literature — Livestock — Photographs

58 HIGH STREET, TUNBRIDGE WELLS,  
KENT TN1 1XF ENGLAND

Telephone: Tunbridge Wells 31926

Hours: 9.30 a.m.—5.30 p.m. except Wednesdays and Sundays

---

Directors: Paul Smart, F.R.E.S., Gita Smart; Consultant: John Muirhead;  
Technical Staff: Trevor Scott, Chris Samson, F.R.E.S.

---

Main catalogue 'Butterflies Presented by Saruman'. 1000 plus  
species listed: equipment: books: etc., 40pp inc. colour plates  
85p plus 10p postage

Supplementary lists (10 issued per year): 40p per annum.

---

Wanted to Purchase — Collections, Cabinets, Entomological  
libraries, large or small; Livestock, etc.

---

In your replies please mention  
'The Entomologist Record'

---

# CONTENTS

Butterflies of Majorca. M. J. PERCEVAL. ....	225
1973—A Remarkable Year. B. GOATER .....	234
Some Records of Craneflies for 1973. E. G. HANCOCK. ....	239
Observing Butterflies at Ayers Rock, Northern Territory, Australia, Nov. 13-15, 1973. REV. P. C. HAWKER. ....	241
Corrigenda .....	242
Note on some Water Bugs (Hemiptera-Heteroptera) Collected on Cape Clear Island, West Cork. T. K. McCARTHY. ....	243
Interspecific Competition in Butterflies. D. G. SEVASTOPULO. ....	244
<i>Erebia zapateri</i> ab. <i>pseudoneoridas</i> ab. nov. M. J. PERCEVAL. ....	245
<i>Phaoni aexoleta</i> Mg. (Diptera: Muscidae) New to Ireland. MARTIN C. D. SPEIGHT. ....	246
Notes and Observations:	
<i>Neolucia serpentata</i> H.-S. (Lep.: Lycaenidae). REV. P. C. HAWKER. ....	245
<i>Acherontia atropos</i> L. in Kent. P. A. SOKOLOFF. ....	246
<i>Hyles gallii</i> Rott. in Cheshire in June 1974. J. MUGGLE- TON and G. KENYON. ....	247
Butterflies feeding on <i>Antigonon leptosus</i> (Polygonaceae). D. G. SEVASTOPULO. ....	247
Day Flying Dipteron taken in M.V. Trap. L. W. SIGGS. ....	248
Some Notes on <i>Cacoecimorpha pronubana</i> Hubn. P. A. SOKOLOFF. ....	248
<i>Lycaena phlaeas</i> L. ab. <i>radiata</i> Tutt in the Isle of Wight. T. D. FEARNEHOUGH. ....	248
Current Literature .....	248
Obituary:	
Kenneth M. Pennington .....	250
The Butterflies and Moths of Kent, Volume 3.	
J. M. CHALMERS-HUNT. ....	(111)



# THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

*Edited by J. M. CHALMERS-HUNT, F.R.E.S.*

*with the assistance of*

A. A. ALLEN, B.SC., A.R.C.S.

C. A. COLLINGWOOD, B.SC., F.R.E.S.

NEVILLE BIRKETT, M.A., M.B.

H. C. HUGGINS, F.R.E.S.

S. N. A. JACOBS, F.R.E.S. (Registrar) S. WAKELY

Lieut. Col. A. M. EMMET, M.B.E., T.D., F.R.E.S.

H. B. D. KETTLEWELL, M.A. M.B., B.CHIR., F.R.C.S., L.R.C.P., F.R.E.S.



ANNUAL SUBSCRIPTION FOR THIS VOLUME No. 86

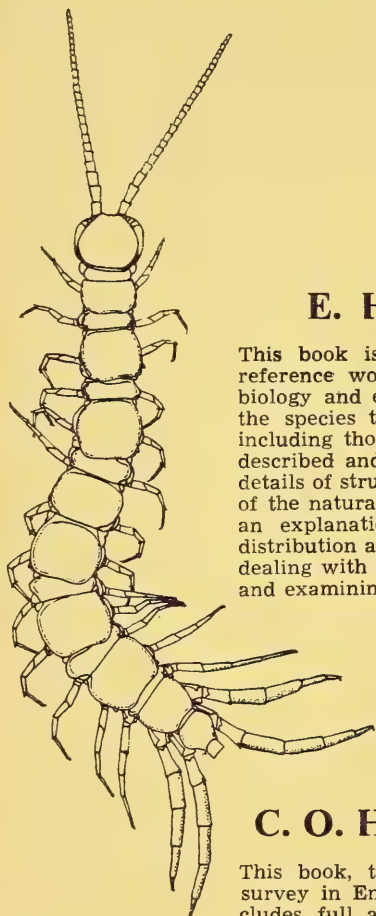
£4.00 Post free, for payment in sterling.

£4.25 if payment is made in Foreign Currency.

Is now due and should be paid to

*Hon. Treasurer:*

P. J. RENSHAW, 53 Links Road, West Wickham, Kent, BR4 0QN



# Centipedes of the British Isles

**E. H. Eason      £3.15 net**

This book is the only fully comprehensive reference work to deal exclusively with the biology and ecology of British centipedes. All the species to be found in the British Isles, including those doubtfully recorded, are fully described and illustrated. The book also gives details of structure and life history, an account of the natural history of the group as a whole, an explanation of the principles governing distribution and classification, and an appendix dealing with methods of collecting, preserving and examining specimens. ISBN 0 7232 0026 2

# Flies of the British Isles

**C. N. Colyer and  
C. O. Hammond      £2.75 net**

This book, the only modern comprehensive survey in English of the British Diptera, includes full accounts of structure and of the more interesting life histories and habits. More than 250 representative species are illustrated in 53 plates, many in colour, and numerous text figures drawn from specimens collected by the authors. There is a section each on the Nematocera, the Brachycera, the Cyclorrhapha, the Acalypterates, the Calypterates, and the Pupipara. In addition a long introductory section provides a detailed analysis of the structure of the fly. The book contains a glossary, a bibliography, and is fully indexed. ISBN 0 7232 0004 1

**FREDERICK WARNE & CO LTD**

**40 Bedford Square London WC1B 3HE**



PLATE XXII



Photo: H. N. Wykeham

Early Stages of *Aloeides thyra* (L.)

Figs. 1-2. Larva, final instar (dorsal and lateral views),  $\times$  approx. 1.6

Figs. 3-4. Pupa, from a considerably larger larva

Fig. 5. Imago, ♀, and food-plant (*Aspalathus* sp.) twice natural size



# The Early Stages of *Aloeides thyra* (L.) (Lep.: Lycaenidae) with Notes on Ant Association, Distribution and General Ecology of the Species

By A. J. M. CLAASSENS, M.Sc., Ph.D.

203 High Level Road, Sea Point, South Africa

and C. G. C. DICKSON, M.Sc.

Blencathra, Cambridge Avenue, St Michael's Estate,  
Cape Town, S. Africa

## Summary

An account is given of the early stages (larva and pupa) of the South African Lycaenid butterfly, *Aloeides thyra* (L.), with detailed field observations and reference to ant association. The habits and distribution of this butterfly are considered, and some other members of the genus are referred to incidentally. Hitherto unknown, the larva of *Al. thyra* is described and figured, while a fuller description is given of the pupa than has appeared in any works in the past.

## Introduction

Up to the present, very little has been published on the early stages of *Al. thyra*, and nothing concerning the larva of this species, which seems to have remained quite unknown, until very recently.

Trimen (1887) found a pupa of *Al. thyra* near Cape Town under a stone. The pupa has also been found by the late Gowan Clark under stones on Lion's Head as far back as 1906, and some 20 years ago by C. G. C. Dickson in the same locality, also under stones.

A fairly complete account, with some figures, of what was considered to be the life-history of *Al. thyra* has been given by Clark and Dickson (1952), but it must be emphasised that these observations, apart from the reference to the pupa, apply strictly to the subsequently described species *Al. depicta* Tite and Dickson (1968).

## New Material

**Larvae:** Two final instar larvae of *Al. thyra* were found by the first author on 7th October 1972 and 8th September 1973. On both occasions the larvae were situated in small depressions in the soil under stones covering nests of the small, black sugar ant *Acantholepis capensis* Mayr. (Formicidae: Camponotinae). An earlier instar larva was discovered clinging to the underside of a stone covering the nest of the ants in which the second final instar larva was found.

**Pupae:** Three pupae were found by the authors in two nests of *A. capensis* on 7th October 1972 and the first author collected another two pupae under similar circumstances on 28th October 1972 and 26th September 1973. All material

referred to above was obtained from the same area on the slopes of the Twelve Apostles above Camp's Bay. Another pupa was found on the slopes of Signal Hill above Ocean View Drive, Sea Point, on 27th September 1973. The latter specimen was also associated with *A. capensis* and like most other pupae found by the present authors, was attached to the underside of a rock. The cast skin and head-piece of the larva seem usually to remain in position at the anal end of the pupa and may become partly embedded in the silk spun previously by the larva on the surface of the rock.

### The Larvae

The larva, found in 1972, was in the late final instar and, when fully extended decidedly elongated, and narrowing towards the distal end. When first discovered it was 20 mm long under full extension. (The specimen found in 1973 attained a length of 24 mm when fully extended). The colour was greyish-green, with longitudinal reddish-brown lines and two rows of orange patches on the dorsal surface. The colour some days before pupation was dull green, with medio-dorsal darker-green streak and some very poorly defined traces of other longitudinal lines. Apart from very minute specialised setae, rather short black spines were scattered over the body as a whole. Lateral setae on the ridge and at the extremities of the body were largely light-coloured, some darker and in general longer than other setae on the larva.

The tubercles were of the highly specialised form usual in this group and related species and, when extruded from their short spined casings, curved over towards the honey-gland with their long hair-like processes fully extended and spread out, the action of the tubercles being very rapid. The head was very dark greyish or brown-black, the neck-shield inconspicuous against its background and of a greyish tint.

The much smaller, earlier instar larva approximated closely in form, colouring and marking to the final instar as described. The setae were less numerous but longer in proportion to the size of the larva, as might be expected in an earlier instar in this group.

The larva of *Al. thyra* is very close to that of *depicta* T. and D., as figured by Clark and Dickson (1971). The colouring and pattern are very similar in each case. Some differences in detail are apparent in other respects—these including the smaller setae and lenticels on certain parts of the larvae.

Shortly after the larva was put in a glass container it attempted to burrow into the soil but soon discontinued this activity and moved upwards against the glass above the soil. The larva made no attempt to feed on fine leaved *Aspalathus* with fresh flowers but wandered about the glass, spinning silk as it went along and resting in a contracted attitude at the upper end of the track of silk. Finally it was placed on top of the *Aspalathus* where it remained without changing its position and, after a few days pupated without any apparent





Photo: H. N. Wykeham

*Aloeides thyra* (L.)

Fig. 1 Imago, ♂ (S. of Hartebeest Kraal, Mamre dist., C. P., 9.xi.71) (x1.5).

Fig. 2 Imago, ♀ (Lion's Head, Cape Town, 27.x.62) (x1.5).

Fig. 3 Larva, late final instar (earlier markings largely lost), dorsal view (x approx. 2).

Fig. 4 Larva, late final instar, lateral view (x approx. 2).

Fig. 5 Pupa, dorsal view (x2).

Fig. 6 Pupa, lateral view (x2).



attachment, on 31st October. The butterfly, a moderately sized female (fore-wing measurement 15.5 mm) emerged on 21st November.

The larva found in 1973 pupated but the imago which became visible through the pupal shell failed to hatch. The smaller larva was seen to feed on *Aspalathus* but died within a few days.

During the first days of its captivity the final instar larva described above was kept under observation together with some specimens of the ant *A. capensis*. The ants were seen running back and forward over the dorsal surface of the larva and whenever an ant arrived at the extended tubercles on segment 11 the latter were suddenly retracted. The purpose of this strange behaviour was not understood and the observations were stopped due to the ants escaping from the container.

Much has been published on the supposed function of the retractile tubercles of the South African Lycaenidae. From the observations on numerous species, the larvae of which possess the highly developed type of tubercles found in *A. thyra*, it has seemed obvious that if ants are too persistent in their efforts to obtain the secretion from the honey-gland, they will be deterred by the action of the tubercles when these come into full play (Clark, 1940; Dickson, 1940; Clark and Dickson, 1956). Clark & Dickson (1956) suggested that the tubercles could perhaps be used in the same way to prevent small insects other than ants from interfering with the honey-gland. Malicky (1969, 1970) suggested that the tubercles of butterfly larvae may be rudimentary structures of organs which have no or little function in attracting ants or in deterring them.

### The Pupae

The pupa found by the second author in 1972 was 14.25 mm in length, robust in proportion and of a general green colour. The head piece and old larval skin were attached to the anal end. The colour changed gradually and by 24th October was largely amber, but brown in places, especially on the thorax, above the wing cases, and at the anterior end of the pupa. The small spiracles were distinct, under magnification, and dark brown. Very small spines were scattered over much of the surface of the pupa but there were no cremastral hooks. By 27th October the colour of the forewings was apparent through the wing-cases, and a large female (forewing measurement 18.5 mm) emerged just before 8.30 a.m. on 30th October. The wings took an appreciable time to expand, showing little or no increase in size for the first eight minutes and only attaining their full size 20 minutes after emergence. In view of the small size of the host ants and the very narrow exits that suit them, one wonders how the comparatively large butterfly escapes from the ants' nest. The unusually long time taken by the newly emerged imago to complete wing expan-

sion may be part of the answer to this problem. Unfortunately three of the remaining pupae kept under observation were parasitised and another two did not hatch although in both the latter cases the wing pattern of the imago became visible through the pupal skin. The pupa found on 7.x.1972 produced a parasitic fly *Blepharella setigera* Corti (Diptera: Tachinidae).

*Note:* It must be stated that the illustrations of both the larvae and the pupae represent the advanced phase, in all cases, when the larvae had lost most of the marking as described in the text, prior to pupation, and the pupae had assumed a dull tone.

### Distribution and Ecology

True *Al. thyra* appears to be restricted to the South Western Cape, or very nearly so, some of its known localities extending up or near to the West coast for a considerable distance to the North of Cape Town, i.e. at least well beyond Saldanha Bay. The distribution of *Al. thyra* was at one time considered to be much wider, owing to other taxa which have since been separated as distinct species having been included with it.

*Al. thyra* occurs in various habitats, virtually from the sea shore to considerable elevations in mountainous country. It habitually settles on the ground or on stones, with its wings closed and the underside colouring and pattern rendering it inconspicuous against this background.

The flight period extends from late August or September to April or the early part of May.

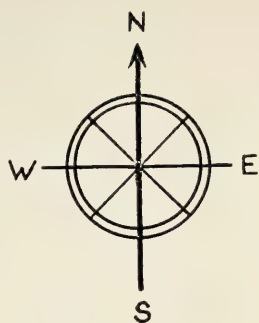
Male specimens are as a rule fairly constant in their upper-side markings but females may vary noticeably in the development of the dark areas of the upper-side. On the under-side both sexes vary greatly in general ground-colour and in the detailed pattern of the hind-wings—even if the basic pattern of this marking is always present. The ground-colour as a whole, of the underside, may range through shades of grey-brown, warm-brown or reddish-brown to a beautiful wine-colour, this variation occurring in both sexes and apparently being found in almost any locality which is frequented by the species.

The ant *A. capensis* with which the larvae and pupae of *Al. thyra* were found associated are common on the mountain slopes of the Cape and they were abundant on the slopes of the Twelve Apostles above Camp's Bay and on the slopes of Signal Hill above Sea Point where the authors searched for the early stages of *thyra*. The workers of the ant are shiny black and about 4 mm long. The queens, of which usually more than one is present in a nest, are about 6 mm long and of a dull brown colour. The species is without soldiers.

The ants are too small to be able to carry the comparatively large *Al. thyra* larvae into their nests and it may be assumed that the larvae crawl into the nests, guided perhaps

Lambert

L. an



Saldanha Bay

Oude Post

Lan

Matjesfontein

Yzerfontein

N

Groot Springen

Melkbo

Blaauw

Ca

Lia

Blinkwater

Twelve

Lamdam

Silvermin

Simon

Smitsw

Still Bay

Km 0

2

Miles 0









by the sense of smell. It is of interest to note that the pupae of *Al. thyra* recorded by Trimen, Clark and Dickson (*Loc. cit.*) were all found under stones but not associated with ants. These pupae presumably were left behind when the ants abandoned their nests and were unable to carry them into their new abodes.

*Al. thyra* larvae do not seem to associate with the much larger spotted sugar ant, *Campanotus maculatus* Fabr. (Camponotinae) which is also common on the slopes of the Twelve Apostles and which were found to be closely associated with the early stages of the Lycaenid butterflies *Lepidochrysops trimeni* (Bethune — Baker) and *L. methymna* (Trimen).

It might be assumed, from the fact of both the larvae and pupae being found in ants' nests, that the larvae of *Al. thyra* is not phytophagous throughout its life-cycle. We have no evidence, however, of this being so and it is felt that further observation in this direction is desirable. The later larva which is mentioned and figured, did in captivity feed on the food plant up to the time it was ready to pupate.

Other related species or groups are known to be very closely associated with ants, sheltering in their special structures, the hollow stems which they frequent, or other concealed places, in the larval state, but coming out to feed, usually at night, on the food-plant which the species happens to use. Several species of *Aloeides*, including *A. depicta*, have been reared through the entire larval state on *Aspalathus laricifolius* Berg. and without any ant association. It is possible, therefore, that under natural conditions the larva of *Al. thyra* only shelters in ants' nests, while remaining phytophagous.

*Al. thyra* seems nearly always to be found in the vicinity of *Aspalathus laricifolius* Berg., and the second author has observed eggs being laid in nature at the base of these plants, sometimes in sand and on occasion two or more together. It may be mentioned that *Al. pierus* (Cram.) has been seen to behave in the same manner when ovipositing, although in the case of this species plants other than the known food-plant (also *Aspalathus*) may be selected for this purpose.

### Acknowledgements

The authors wish to thank Mr H. N. Wykeham for preparing the photographs for this article, and Dr Jeffrey Kaplan for furnishing several localities of the species. Thanks are also extended to Dr R. W. Crosskey of the British Museum (Nat. Hist.) for identifying the parasite.

### References

- Clark, G. C. (1940). On the Life-Histories of some South African Lepidoptera. *J. ent. Soc. Sth. Afr.*, **3**: 42-56.  
Clark, G. C. and Dickson, C. G. C. (1952). *Some South African*

*Butterflies*. Cape Town.

- Clark, G. C. and Dickson, C. G. C. (1956). The Honey Gland and Tubercles of Larvae of the Lycaenidae. *Lepid. News* (U.S.A.), **10** (1-2): 37-40.
- Clark, G. C. and Dickson, C. G. C. (1971). *Life Histories of the South African Lycaenid Butterflies*. Cape Town.
- Dickson, C. G. C. (with Gowan Clark), (1940). *Ann. S. Afr. Mus.*, **32** (6): 545-554.
- Dickson, C. G. C. (1953). *J. Ent. Soc. Sth. Afr.*, **15** (1): 73-76.
- Malicky, H. (1969). Versuch einer Analyse der Ökologischen Beziehungen zwischen Lycaeniden (Lepidoptera) und Formiciden (Hymenoptera), *Tidschr. Ent.*, **112** (8): 213-298.
- Malicky, H. (1970). New Aspects on the association between Lycaenid larvae (Lycaenidae) and ants (Formicidae, Hymenoptera) *J. Lepid. Soc.*, **24** (3): 190-202.
- Murray, D. P. (1935). *South African Butterflies. A Monograph of the Family Lycaenidae*. London.
- Tite, G. E., and Dickson, C. G. C. (1968). The *Aloeides thyra* complex. *Bull. Br. Mus. Nat. Hist. (Ent.)*, **21** (7): 369-388.
- Trimen, R. (1887). *South African Butterflies*, **2**.

## Discovery of Larvae and Natural Foodplant of Least Carpet, *Idaea vulpinaria* Herrich-Schäffer (*rusticata* sensu auct.) (Lep. : Geometridae)

By B. K. WEST

36 Briar Road, Bexley, Kent

Having previously associated this species in north-west Kent with common elm (*Ulmus campestris* L.) and with that alone, although to my knowledge the larva has never actually been found feeding upon it, I was interested in July 1972 to find in a very restricted location at Bexleyheath, Kent, the moths on many occasions settled upon a wall far removed from any elm. Subsequently I noticed freshly emerged specimens drying their wings there, and so realised that the locality must support a colony attached to something other than elm. As there were half a dozen isolated and neglected plants of *Alyssum saxatile* L. growing there, I suspected this might be the food-plant, and so during the summer of 1973 examined these carefully on several occasions, first for eggs and later for larvae, but without success.

In May this year, I made a number of further unsuccessful daylight searches. However, on 17th May, I visited the locality after dark and with the aid of a torch, searched the flowers and leaves, but again without success. I then examined the considerable accumulation of dirt and dead leaves beneath the clumps and still finding no larvae, as a last resort shook some of the debris over a newspaper. Examination of this revealed an abundance of small spiders and two small



Geometrid larvae. Then, by carefully lifting the foliage and searching debris beneath the plants, I discovered over a dozen more larvae several of which I took. These duly pupated and the first *I. vulpinaria* emerged on 16th June, when incidentally I noticed the first feral moths of the season on the wall beside the plants.

Although larvae were not observed eating dead or withered leaves, I found two on partly eaten withered foliage, and the larvae in captivity completed their growth on this. Later, I found eggs at Bexleyheath attached singly and insecurely to debris within the clumps of *A. saxatile*.

In conclusion, it is interesting to note that the moths are to be found only in the vicinity of *Alyssum*. Similar clumps of catmint (*Nepeta* sp.) and perennial rock cress (*Arabis* sp.) do not have *S. vulpinaria* resting on their adjacent walls.

## Grote in Hildesheim

By R. S. WILKINSON, Ph.D., F.L.S., F.R.E.S.

228 Ninth St. N.E., Washington, D.C., 20002

In a recent brief biography of Augustus Radcliffe Grote, the distinguished nineteenth-century American lepidopterist (Wilkinson, 1971), I was able to furnish little new information concerning the least documented period of Grote's life, his residence in Hildesheim, Germany, from 1895 until his death in 1903. A recent opportunity to examine German sources as well as a complete set of the publications of the Roemer-Museum (Hildesheim) has revealed some pertinent additional facts about the last years of that controversial entomologist who was called by his contemporary Tutt (1903) "the best loved and best hated lepidopterist in America".

Grote emigrated to Germany in 1884, after selling his famous collection of American Lepidoptera to the British Museum. Upon taking up residence in Bremen, he eventually married his second wife, Gesa Maria Ruyter, daughter of a wealthy tobacco merchant. His faltering financial condition revived, Grote was once again able to devote himself to entomological pursuits (Wilkinson, 1971). After a long and productive residence in Bremen, at least regarding publication, Grote moved to the nearby town of Hildesheim.

Our chief sources for this little-known end to Grote's amazingly productive life have been his few obituaries, such as Tutt's, which explained that "his reawakening of the sleepy museum at Hildesheim, to which he attached himself as an honorary helper some few years ago, is fresh in the memory of all of us, and there must be few British lepidopterists worthy of the name who are not familiar with the quarto brochures that have issued thence of late years" (Tutt, 1903). Grote's German friend Wilhelm Bode explained that "... seit 1895 bewohnte er Hildesheim und war bis zu seinem am 12. September v. Js. erfolgten Tode

am Roemer-Museum tätig, dessen entomologische Abteilung er verwaltete. Die Schmetterlingssammlung dieses Instituts hat er geradezu musterhaft aufgestellt und nützte überall, wo er konnte, dem Museum durch seine reiche Erfahrung und seine vielfachen Beziehungen zum Auslande" (Bode, 1904).

The facts reveal that Grote and his family moved to Hildesheim in the early spring of 1895, presumably soon after the actual writing of his classic "Collecting Noctuidae by Lake Erie" (Wilkinson, 1974). The last issue of *The Canadian Entomologist* containing a contribution mailed by Grote from Bremen was published in June, and the 15th June number of *The Entomologist's Record* included Grote's "Spring Notes" from Hildesheim. His papers show that he began to collect widely in his new locality, and quickly conceived the idea of a published monograph on the Lepidoptera of the vicinity. He soon became associated with the provincial museum which upon the death of one of its founders, Senator Dr Hermann Roemer, had been named the Roemer-Museum in 1894. This small but very well-stocked repository displayed antiquities, other objets d'art, and a considerable natural history collection.

Grote took the insect displays and study specimens in hand, and diligently arranged these as honorary curator, also serving on the board of directors of the Vereins für Kunde der Natur und der Kunst. His own collecting in the surrounding area resulted in a fine series of local specimens for the museum, but this was not enough for Grote; he solicited insects from correspondents in far parts of the world, including his American friends; as example, his boyhood comrade Edward Graef sent a collection from Brooklyn in 1896. Grote made considerable progress in acquisition, mounting and arrangement of the Hildesheim insect collections in the eight years before his death in 1903, so that in the following year the Museum could point with pride in its published guide for visitors to the especially extensive and attractive holdings of Lepidoptera and Coleoptera assembled by Grote (Roemer-Museum, 1904).

Grote's own publications during his last years in Hildesheim approached the remarkable record of productivity established in his later American period. Ninety-one titles are listed by Derksen and Scheiding-Göllner (1965) from the time of Grote's removal to Hildesheim until the conclusion of their bibliography at the end of 1900, and the present author has traced scores of additional papers in various American, English and German journals during Grote's last few years. He continued to favor *The Canadian Entomologist* with numerous contributions. Several significant papers were transmitted to the *Proceedings* of the American Philosophical Society, and others range from *The Entomologist's Record* to the *Insektenbörse*. (The author has fortunately acquired a bound volume of Grote's final publications, includ-

ing a number of ephemeral German papers, which will hopefully contribute to the completion of his bibliography).

Grote's wide-ranging interest in the Lepidoptera, which had considerably broadened during his earlier German years, was similarly pronounced during his residence in Hildesheim. His papers covered a spectrum of topics from a continuing critique of Francis Walker's type specimens at the British Museum to an increasing concern with the evolution of the Lepidoptera and the resulting classification of the Rhopalocera. The transition from his earlier pre-occupation (eminently useful as it was) with naming species and genera indicates a profound awareness of the direction entomology was taking, and Grote's studies of such topics as wing neurulation make very interesting reading for those interested in the development of contemporary concepts (although of course serious study of wing neurulation in the Lepidoptera originated in the eighteenth century).

In Hildesheim, Grote continued to express the same reverie about his American residence and sense of "exile" which was evident in his Bremen writings (Wilkinson, 1974). He felt that his American friends had forgotten him, which was not entirely true, as American investigators continued to send him specimens for identification and comment, and sometimes contributed to the museum at Hildesheim. His sense of isolation was always present, though often submerged. Shortly before leaving for Hildesheim, Grote contributed some verses to a celebration for his early Brooklyn teacher at the State Street School, Joseph Deghuée, recalling the early influences which now meant so much to him:

A moment pause! The air is stirred  
 From far across the main;  
 A scholar's waiting for the word,  
 Wants to be heard again.  
 Look round the board! Of all you taught,  
 If few attend today—  
 If any of us came to naught,  
 If others made their way.  
 All loved you. More can not be said,  
 O, teacher wise and true!  
 The light that you upon us shed,  
 In love returns to you.  
 Fill for the absent ones a cup,  
 Whose hearts are yours always.  
 And fill the goblet brimming up  
 A thousand healths—Deghuée! (Grote, 1895a).

Grote's poem hardly rises to the level of his much earlier verses in *Rip van Winkle: A Sun Myth and Other Poems* (1882), some of which demonstrated unusual skill, but it suggests the reminiscences which haunted him in his later years. Even in the delight of field experiences, which Grote described with a literary quality subordinate to few other ento-

mologists, there was a sense of loss; collecting the magnificent Emperors *Apatura ilia* and *iris*, during his first summer in Hildesheim, Grote noted that both species had been "unusually abundant . . . Although very difficult to capture, eight or nine specimens were netted on July 9th, while feeding on droppings on the wood roads, or resting a moment on the bushes fringing the paths. At least fifty were seen during the morning. While engaged in the exciting chase, the perspiration (from the exertion and the great heat of the day) starting from every pore, the hunter could not help remembering the charming paper on *Iris* in the April number of the *Record*, and wishing, with all his heart, that the talented author [Hewett, 1895] had shared the wild joy and deep despair experienced on the occasion. The specimen, which was *almost* in the net, was evidently so much fresher—just from the chrysalis—than the one really bagged, that the failure to catch it cast a gloom over all existence. One lovely *Iris* was struck by the ring of the net, and dropped in the grass, from whence it arose wildly, and, in less than half a second, had soared over the highest oak. One peerless beauty lost a good bit of one hind wing in the struggle, but is otherwise so bright, that now, on the setting board, with the damage covered up for the moment by the paper strip, it reconciles one to this sad life" (Grote, 1895b).

So despite his feeling of isolation, Grote had not lost his inimitable talent for describing the chase, so evident in some of his earlier works, and he had not lost his characteristic and curiously perverse wit; in a communication to *The Canadian Entomologist* he complained that "I find my name *Melanomma auricinctaria* changed to *M. auricinctarium*. I protest against this alteration in my original spelling. In all cases the gender implied originally by the author should be conformed to subsequently . . . . If I conceive of *Melanomma auricinctaria* as a golden-ringed, black-eyed woman, there is none competent to contradict me and insist that I should conceive of it as a golden-ringed, black-eyed stone!" (Grote, 1898).

Preserving his characteristic idiosyncracies to the last, A. Radcliffe Grote died in 1903, but not until he had wrought a considerable change at what Tutt had called Hildesheim's sleepy museum. Grote not only contributed to the Roemer-Museum's insect collections, but the *Mitteilungen aus dem Roemer-Museum* series was initiated and, at least for a while, largely supported by his contributions on the Lepidoptera. Seven of the nineteen numbers published before Grote's death were written by him. They are described in the following bibliography, compiled from a complete series of the *Mitteilungen* at the Geological Survey Library, Washington, D.C., and incomplete sets at various other American libraries.

No. 1. Systema Lepidopterorum Hildesiae juxta opera



praeliminaria, quae ediderunt Bates, Scudder, Gulielmus Mueller, Comstock, Dyar, Chapman compositum. Pp. [1-4]. In Latin, dated August 1895. An arrangement of the Lepidoptera of the Hildesheim area into suborders, superfamilies and families, with type species for families. No wrappers present in examined copies, although they may well have been printed.

No. 2. Not by Grote.

No. 3. Die Apateliden. Pp. [1], 2-18, 2 plates. In German, dated January 1896. A monograph on the family Apatelidae (Lepidoptera), of Grote's superfamily Agrotides. Blue printed wrappers.

No. 4. Not by Grote.

No. 5. Not by Grote.

No. 6. Die Saturniiden (Nachtpfauenangen). pp. [1], 2-28, [29-32], 3 plates. In German, dated June, 1896. A discussion of the family Saturniidae, with evolutionary diagram, figures of wing venation and chaetotaxy, and a list of the Saturniids of North America and Europe. Blue printed wrappers.

No. 7 System der nordamerikanischen Schmetterlinge. Pp. [1-4]. In German, dated 10th November, 1896. A division of North American Lepidoptera into suborders, superfamilies and families, the latter with types, in the manner of No. 1. No wrappers present in the only copy examined, although they may have been printed.

No. 8. Die Schmetterlingsfauna von Hildesheim. Ersten Theil: Tagfalter. Pp. [1], 2-44, [45-52], 4 plates. In German, dated February, 1897. A discussion of the classification of the Rhopalocera of Hildesheim (suborders, superfamilies, families), their characteristics and types; an evolutionary diagram; diagrams of wing venation; these followed by an introduction to the butterflies of the Hildesheim area and a catalogue. The plates are of wing venation. The catalogue includes type species, as well as localities and dates of capture of specimens. Grey printed wrappers.

No. 9. Entwurf eines diphyletischen Stammbaumes der europäischen Tagfalter. Pp. [1-4]. In German, dated August, 1897. Title page and diagram, "Versuch eines diphyletischen Stammbaumes der europäischen Tagfalter, wesentlich begründet auf die Entwicklung des Flügelgeäders." No wrappers present in the only copy examined, although they may have been printed.

No. 10. Not by Grote.

No. 11. Systema Lepidopterorum Hildesiae. Zweite Folge. Phylogenie und Begrenzung der Tagfalter-Familien, hierzu Stammbaum und Tafel. Pp. [1], 2-10, 1 plate. In German, dated April, 1900. The second fascicle of No. 1. A classification of the Hildesheim butterflies, with an evolutionary diagram and a plate illustrating wing venation. Grey printed wrappers.

[Grote's attempt to produce an extensive work on the Lepidoptera of the Hildesheim region was realized by his friend Wilhelm Bode (1907), who published a catalogue on the same plan, with additions and emendations].

#### References

- Bode, W. (1904). A. Radcliffe Grote. *Allg. Z. Ent.* **9**: 1-6.  
 Bode, W. (1907). Die Schmetterlingsfauna von Hildesheim. *Mitt. Roermuseum. Hildesheim*, **22**.  
 Derksen, W., and U. Scheiding-Göllner. (1965). *Index litteraturae entomologicae, 1864-1900*, II. Berlin.  
**228**.  
 Grote, A. R. (1882). *Rip van Winkle: A sun myth and other poems*. London.  
 Grote, A. R. (1895a). Untitled poem. In Deghuee alumni. *Can. Ent.*, **27**: **228**.  
 Grote, A. R. (1895b). Notes of the season. *Entomologist's Rec. J. Var.* **7**: 64-65.  
 Grote, A. R. (1898) Corrections. *Can. Ent.*, **30**: 327.  
 Hewett, G. M. A. (1895) Iris. *Entomologist's Rec. J. Var.* **6**: 145-147  
 Roemer-Museum, (1904). *Allgemeiner Führer durch die Sammlungen des Roemer-Museums*. Hildesheim.  
 Tutt, J. W. (1903). Current notes. *Entomologist's Rec. J. Var.* **15**: 272.  
 Wilkinson, R. S. (1971). Foreword. In Grote, A. R. *An illustrated essay on the Noctuidae of North America*. Hampton, Middlesex.  
 Wilkinson, R. S. (1974). The genesis of A. R. Grote's "Collecting Noctuidae by Lake Erie". *Great Lakes Entomol.* **7**: 16-18

## A Note on some Water Bugs (Hemiptera-Heteroptera) Collected on Cape Clear Island, West Cork

(Concluded from p. 243)

In conclusion, the writer wishes to thank Dr G. A. Walton for advice and for confirming identifications.

#### References

- Macan, T. T. (1964). A revised key to the British water-bugs (Hemiptera-Heteroptera). *Freshw. biol. Assoc. sci. publ.*, **16**: 1-77.  
 Sharrock, J. T. R. (1973). *The Natural History of Cape Clear Island*. Poyser, Berkhamstead.  
 Southwood, T. R. E. (1956). The Zoogeography of the British Hemiptera-Heteroptera. *Proc. S. Lond. ent. nat. Hist. Soc.*, **1956**: 111-125.

---

LYCAENA PHLAEAS L. AB. CUPRINUS PEYERIMHOFF IN THE ISLE OF WIGHT. — I captured a fine fresh female of ab. *cuprinus* near Ventnor on 19th August 1973. The summer brood of *phlaeas* was in good numbers at this locality and I also observed several specimens of ab. *caeruleopunctata* Ruhl.—T. D. FEARNEHOUGH, 26 Green Lane, Shanklin.

## Notes on British Cionini (Col.) mainly arising out of Mr Cunningham's findings in the Portsmouth Area

By A. A. ALLEN, B.Sc., A.R.C.S.

49 Montcalm Road, London, SE7 8QG

Mr P. Cunningham's valuable survey of the figwort-weevils (Cionini) of the Portsmouth area of South Hampshire (*antea*: p. 184) prompts a number of questions, etc., which, with a few related points, I thought it might be worthwhile to touch on; hence the following brief comments, often with reference to the writer's experience of these pretty and highly interesting little beetles gained in the course of nearly half a century's intermittent collecting in southern England. The points calling for remark are ranged under five headings in roughly the sequence in which they occur in Mr Cunningham's paper.

For purposes of convenience and brevity, *Cleopus pulchellus* will be considered throughout as though it were a *Cionus* — as indeed it was so treated in all the literature up to quite late.

1. *Means of protection.* — Mr Cunningham makes the interesting observation that the death-feigning reflex appears to be weakest in *C. alauda*. May not this fact be somehow connected with its peculiar coloration? For *Cionus alauda* is one of a small group<sup>1</sup> (for which I would propose the descriptive term *ornithocopromimes*) whose characteristic style of coloration—basically white, with darker shades intermixed, or with grey and brown mottlings, clouds, or marblings—causes them to be easily passed over, when at rest, as small pieces of bird-dropping. In proportion to the success of this mimicry, evolutionary pressure to develop a death-feigning reflex (even though its possession would be an added advantage) would tend to be slackened.

Our other Cionini have no such resemblance or very little. When sitting in the middle of a leaf, for instance, the adult weevils are conspicuous enough; but in fact they are very often to be found at or near the tips of the shoots amongst flower-buds or seed-vessels where their somewhat disruptive (?) coloration makes them, perhaps, less easily seen. The curious velvety-black spots at base and apex of elytra, so characteristic of the tribe, probably play some part here. The brownish-green or grey-green tint of the *hortulanus*-group species may well be procrystic in effect.

The short, fat, sluggish and indeed slug-like larvae are no doubt protected both by their covering of slime and by their

<sup>1</sup>The majority of them are small moths

likeness to the seed-vessels of the plant. This resemblance would apply also to the cocoons.

It should be noted that the freely exposed larvae and cocoons of the Cionini are very closely paralleled in another weevil group, the Phytonomini (Hyperini). The two tribes are not usually considered to be closely allied as far as imaginal structure is concerned, in which case they would seem to present a remarkable instance of convergent evolution as regards the biology of the early stages.

2. *Mixed colonies*.—The normal maximum (possibly occasionally exceeded) is four species coexisting on the same plant specimen, these in my experience being *scrophulariae*, *alauda*, *hortulanus* and *pulchellus* together on a plant of *S. nodosa*. Such a community is by no means rare. One generally finds in these cases that one or both of the smaller species present (*alauda*, *pulchellus*) are fewer or much fewer in numbers than the other, larger, species—suggesting that the former are experiencing some stress of competition. Presumably *tuberculosis* can replace *scrophulariae* locally in mixed colonies (but see under 4); or the two might co-exist with probable elimination of one of the others. Evidence on this matter would be of interest. The commonest combinations are of either two or three species in company; to find one species, other than *tuberculosis*, in sole possession of a single figwort plant<sup>2</sup> is so much more unusual that the question arises whether there may not be some (obscure) advantage to the weevils in some degree of interspecific symbiosis. In fact I cannot recollect ever having met with such an instance personally; but as Mr Cunningham has so found *hortulanus* several times, as well as *tuberculosis*, most likely my memory is at fault here.

When *two* species are found cohabiting, they seem more often to be either *alauda* and *scrophulariae*, or *pulchellus* and *hortulanus*, than any of the other possible pairs. Again however, more precise observations are needful.

As to the alternative host-genus, *Verbascum*, the experience of both of us is so different from what it has been with *Scrophularia* (see the following section) that, in spite of the statements of Fowler (1891) and other authors, it would appear improbable that as many as four species could be found living together on any one mullein plant, in a state of nature, in Britain.

3. *Foodplants*.—Though all 7 of our recorded Cionini are stated in the literature to occur on *Verbascum* (mostly *V. thapsus*, the hairy mullein) as well as on *Scrophularia*, and one (*C. longicollis*) on the former only, nevertheless it is general experience that they are more commonly found on the two figwort species, *S. nodosa* and *S. aquatica*. I have myself met with

<sup>2</sup>I refer, of course, to established breeding populations, not to casual individuals



only three of the weevil species on mullein (as far as records and memory go): these are *hortulanus* (a few times), *thapsi* (*thapsus* auct.)—frequent on the North Downs about Box Hill in Surrey, also but rather less often on *S. nodosa* — and *pulchellus* once, sparingly, near Marlborough in Wilts. In each case the plant was *V. thapsus*. *C. pulchellus* alone is not recorded by Fowler from *Verbascum*, but mine is not the only such find.

Despite what has just been said, it is surely extraordinary that no Cionini at all were found on any of about 500 plants of *V. nigrum* and about 80 of *V. thapsus* examined by Mr Cunningham. Fowler gives *V. nigrum* (dark mullein) as a foodplant of *C. alauda* but it is possible that some of his host data may be taken from foreign works: in our insular fauna many insects tend to have more specialised habits or tastes than they do abroad. Linssen (cited by Mr Cunningham) copies Fowler's data almost throughout his two volumes and is highly unreliable for up-to-date information; he must certainly be wrong in stating that dark mullein is "the" foodplant of *C. hortulanus*, though it may perhaps be a foodplant.

I can assure Mr Cunningham that other species besides *tuberculosis* are to be found on the water betony, *Scrophularia aquatica*; those I have encountered are (definitely) *scrophulariae* and *alauda*, e.g. in East Kent, and (less certainly) *pulchellus*. I am inclined, however, to doubt whether *hortulanus* breeds on *S. aquatica*—unless perhaps quite exceptionally. In any case I agree that in general *nodosa* is much the more favoured plant.

There are by now a good many references in the literature — and others unpublished — to the occurrence of various species of these weevils on buddleia in gardens. That they will breed freely on this and certain related exotic plants seems odd in view of their normal restriction in the wild in Britain to only two genera of the Scrophulariaceae when there are many others also available.

Much doubtless remains to be learnt about host-preferences, etc., in the various species. The findings rather suggest that there may be local or regional differences in this respect which in the present state of knowledge are quite unaccountable.

4. *Relative incidence*, etc. — It is possible to arrange our species in order of general or overall frequency. This of course will differ somewhat according to the individual collector or observer; my own experience indicates the following order for the southern and S.E. districts at least (proceeding from more to less common): *scrophulariae*, *hortulanus*, *alauda*, *pulchellus*, *tuberculosis* (very local), *thapsi* (ditto, and only on the chalk), *longicollis*. This brings me to the second exceedingly strange negative finding reported by Mr Cunningham: the apparent absence of *C. scrophulariae* in the areas worked by

him. I think most coleopterists would place this as on the whole our most frequent species, of almost general distribution in at any rate the southern counties. Perhaps in certain districts it tends to be replaced by *tuberculosis*, which I have never found in company with *scrophulariae*, and only once both in the same locality (Rickmansworth, Herts.). *C. tuberculosis* has been very local to me; near London I have found it only on the N. and N.E. fringe, but there abundantly in a few spots, especially on *S. nodosa* along hedgebanks; Fowler's "marshy places", therefore, is not always apt. *C. hortulanus*, I would say,—often with *pulchellus*—is commonest in shaded situations, e.g. beside woodland paths or in clearings. I am not aware of ever having found it mixed with the very similar-looking *thapsi*, a species of downland, chalk cuttings, etc.

With gregarious insects such as these, terms like 'common' and 'rare' are naturally to be understood as relating, not to the numbers of a species in an average colony, but to the frequency of its colonies in the area in question. Thus even the most local species may be as numerous, where it occurs, as the least local. At the same time it will be evident that none is really common in the sense of occupying nearly all (apparently) suitable habitats in a given area—which in fact is true of the great majority of insects in varying degrees.

5. *A further species from Portsdown.* — To complete the record of these weevils in the area of Mr Cunningham's researches, it should be noted that the first known British examples of *Cionus longicollis* Bris. were taken by H. Moncreaff in 1871 "off a plant of *Verbascum thapsus* growing in an old roadway at Portsdown". In *Ent. Mon. Mag.* 1894, 30: 100, where this record is given, G. C. Champion points out that some of the specimens were previously determined as *C. thapsi*; this may, therefore, be the basis of Fowler's record of the latter "Portsdown . . . (Moncreaff)" though there is no reason why both species should not have occurred there. *C. longicollis* has a very restricted distribution in this country; Moncreaff remarked in a letter to Champion that he never met with it again, but it was later reported from Harewood Forest in N. Hants. by J. R. Tomlin. Its British headquarters at the present time is the Suffolk/Norfolk Breckland. However, it is tempting to speculate that it could yet persist in some out-of-the-way nook in the original district; if so, I hope that Mr Cunningham will be fortunate enough to rediscover it.

In conclusion, I should like to urge those who encounter these and other species of the two plant genera concerned (particularly *Verbascum*) to examine them well for weevils. There are on the Continent several species of Cionini and Gymnetrini not yet known to occur here, but of which some might possibly be found if their hosts are searched. Warm sheltered hollows or south-facing slopes of the chalk probably offer the best chances. For instance, *Cionus olens* F. was once

taken in Britain (one specimen, locality unknown) but has not been found since and requires confirmation; it lives on the hoary mullein, *V. pulverulentum*. Another Cionine, *Stereonychus fraxini* Deg., is common e.g. through Denmark, and ought to be found with us even if only rarely. Its foodplant is the common ash, the foliage of which is not known to support any British beetle and thus may receive too little attention from collectors.

## Dimorphism in *Papilio* Pupae

By D. G. SEVASTOPULO, F.R.E.S.

c/o Reynolds & Co., P.O. Box 95026, Mombasa, Kenya

Before describing a recent experiment with *Papilio demodocus* Esp., I propose making some general remarks and recapitulations.

Broadly speaking the pupae of the African and Indian Papilios, with which I am well acquainted, both at first hand and from literature, can be divided into two groups, those which are highly procryptic in shape, and those which are not. The former, which includes the cylindrical, stick-like pupae of *Chilasa* Moore and the dried, curled leaf-like pupae with projecting subdorsal processes of *Polydorus* Swains., are usually monomorphic and brown in colour, although the pupa of *C. paradoxa* (Zinken-Sommer) is said to be green or brown 'according to the colour of the twig to which it is fastened' (Talbot, *Fauna of British India, Butterflies*, i, 2nd edit.), and that of *P. dasarada* (Moore) is said to be greenish yellow with lilacine stripes (Talbot, *loc. cit.*). On the other hand the pupae of *Troides* Hbn., *Papilio* L. and *Graphium* Scop. are not particularly procryptic and are usually dimorphic, having a green and a dark form. Possibly polymorphic would be a better term as, although the green forms are fairly constant, the dark forms vary quite considerably in shade, and *P. demoleus* L. and *P. demodocus* have a pink form as well. There are exceptions to this, for instance the highly specialised, flattened, leaf-like pupa of *P. dardanus* Brown is, as might be expected, always green. Another exception is the pupa of *Graphium pylades* (F.), which is always green, but this exhibits a certain degree of dimorphism in the presence or absence of small purplish marks above the subdorsal pale line. The invariable green coloration of the *pylades* pupa is something of a puzzle, the larvae are common on a small tree of the food-plant growing in my garden, but I have never found a pupa formed under its leaves and, as the pupa often undergoes a fairly long diapause, it seems likely that it is formed away from the food-plant, which is deciduous. Incidentally Talbot's statement that the pupa of *Troides* is sustained by separate lateral threads attached to a tubercle on each side of the pupa is incorrect. A little thought will show that this form of attachment is a physical impossibility as the tubercles do not exist



when the threads are spun. The pupa is actually supported by a girdle in the usual way, but the portion across the dorsum is not visible as it has been embedded in the cuticle by the weight of the pupa when it was newly formed and the cuticle soft.

An exact parallel occurs in the larval coloration of the choerocampine Sphingidae in general and the genus *Rhagastis* Roths. & Jord. in particular. There are species whose larva is always green, others where it is always brown, and yet others where the larva is dimorphic—either green or brown.

A point that I have never seen recorded in print is the fact that it is impossible to forecast the final colour of *Papilio* pupae in the pharate stage, in some other species—*Danaus chrysippus* (L.) (Danaidae) with its green or pink pupa, and many species of the genus *Colotis* Hubner (Pieridae) with their green or straw-coloured pupae, for example—the final colour of the pupa is plainly discernable in the late pharate stage, but the dark colour of *Papilio* pupae does not develop until after the final larval skin has been shed and the pupa is in the process of hardening. Empty pupa shells of *chrysippus* and *Colotis* are visually indistinguishable, colourless and transparent, irrespective of the original colour of the pupa, but the colour of the empty pupa shells of *Papilio* remain distinct after the imago has emerged.

Probably the oldest explanation for this dimorphism was that it was a means to match the surroundings in which the pupa was placed and there was considerable discussion and experimentation to ascertain how the dimorphism was activated, whether, for example, the stimulus was visual through the eyes or through special colour receptors placed somewhere on the body. (Poulton, 1892).

Collecting and breeding the citrus-feeding *P. polytes* L. and *P. demoleus* in India, I found so many exceptions to this 'matching' theory that I became dissatisfied and conducted some rather crude experiments with the two species. The full-fed larvae, after passing their final evacuation, were confined in circular tins, enamelled inside in various colours, both natural and unnatural, and covered with a piece of glass, and left to pupate. The overall results, which were too small to be statistically significant, did little to confirm the 'matching' theory, but it was noticed that those larvae that slipped through their girdles and pupated at the bottom of the container produced a far higher proportion of brown pupae than those that had pupated successfully suspended by their girdles. This suggested that movement by the larva immediately prior to pupation might be a factor controlling the production of brown pupae. (Sevastopulo, 1948).

In 1956 a paper was published (Hidaka, 1956) describing experiments with the Japanese species *P. xuthus* L. and *P. protenor demetrius* Cr. It was stated that all pupae formed in a small, dark box were of the brown form and that, in July



and August, when the weather was very hot, the majority of the pupae were green. It is not altogether clear from the text that these green pupae were not formed in the small, dark boxes, but the inference is that they were not. For this reason the experiments were carried out in June, September and October. The first series of experiments consisted of tying a fine silk ligature tightly round the pharate pupa at either 7 a.m. or noon following the evening during which the larva suspended itself. The result of the 7 a.m. ligature was to produce a parti-coloured pupa, the part posterior to the ligature green and that anterior brown. When the ligature was placed at noon, all the pupae were completely brown. The second series consisted of destroying various ganglions and it was found that pharate pupae without the ganglion of the head, the suboesophageal ganglion or the prothoracic ganglion always produced green pupae, whilst those that were without the ganglion of the meso-thorax or the first abdominal somite mostly produced brown pupae. From this it was deduced that it was essential that the complex of the cervical, the suboesophageal and prothoracic ganglions to be intact during the prepupal period if a brown pupa was to be produced, and it was suggested that the brown colour was the result of a hormone produced, or controlled, by them. West (see below) refers to additional Japanese papers, but I have not seen them.

Very little else appears to have been published until fairly recently when the suggestion was put forward that the dimorphism in the pupae of *P. demodocus* might be seasonal, green pupae appearing in the rainy season and brown in the dry (Owen, 1971).

About the same time another paper appeared (Oldroyd, 1971), pointing out that chemically the difference between the empty pupa shells of green and brown pupae of *P. memnon* L., was the presence of melanin in the latter and its absence in the former.

A further paper (Clarke & Sheppard, 1972) gave details of the proportions of green to brown pupae of the American *Battus philenor* (L.) found in the wild and described experiments with large numbers of pupae of *P. polytes* bred in captivity. In *philenor* there appeared to be some relationship between the thickness of the twig on which the pupa was formed and the colour, thin twigs producing green pupae and thick ones brown. From the results of the experiments with *polytes*, it was suggested that the normal pupal colour was green and that brown pupae only appeared as the result of certain stimuli.

In the course of personal correspondence, Professor Clarke informed me of experiments carried out with *philenor* in America which suggested that the stimulus needed to produce brown pupae was roughness of the surface to which it was attached.

I, therefore, decided to work on those lines with *P. demodocus*. The apparatus was simple — glass jars of approximately 4" in height and 1 $\frac{3}{4}$ " in diameter were lined, either inside or out, with sandpaper, the mouth being covered either by a piece of sandpaper with a weight on it, or by a piece of glass with sandpaper above. The larvae were placed in these pupating jars immediately after they had passed their final evacuation, usually some time in the evening, and the jars were kept in a closed wooden box until pupation was completed. The results were as follows:—

	Smooth surface	Rough surface
Green pupae	11 (23·40%)	1 (1·89%)
Brown pupae	25 (53·20%)	50 (94·34%)
Pink pupae	11 (23·40%)	2 (3·77%)

There can be no doubt from these figures that the rough surface produced more brown pupae than the smooth, but is this purely the effect of the surface, or does the rough surface tend to make the pupating larva wander further before it finally settles down and spins its girdle?

The above figures have been somewhat distorted by a factor that was not appreciated until it was too late, but which does tend to support the hypothesis that the brown pupal colour results from movement. During the early part of the experiment, larvae were not very numerous and it was possible to rear each larva, often from the egg, in a separate container. Later in the experiment larvae became far too numerous for this to be possible and they were reared in batches of about twelve larvae until half way through the last instar when they were separated and transferred to individual containers. All through the experiment, either by accident or design, an occasional larva was allowed to pupate in the container in which it had fed among the leaves. During the first part of the experiment, when all larvae were being reared separately, all these pupae were green, in the latter part they were invariably brown. Similarly no green pupae appeared in either the rough or the smooth containers during the second part of the experiment. Unfortunately this was not realised until too late, otherwise the contrast between the two sets of figures would have been far greater. It is proposed to repeat the experiment using only larvae that have been reared separately.

(to be continued)

---

PYRONIA TITHONUS L. AB. ALBIDUS COCKERELL IN THE ISLE OF WIGHT.—I captured a specimen of this aberration on the downs above Ventnor on 4th August 1973. The specimen is female and unfortunately damaged, and still more unfortunately it had already disposed of all its eggs. It is interesting that in the same area, E. Cornell captured a specimen of ab. *albidus* in 1920 and J. Lobb a specimen of ab. *minckii* in 1961.—T. D. FEARNEHOUGH, 26 Green Lane, Shanklin.

# Lepidoptera Aberdeenshire and Kincardineshire

By R. M. PALMER

(Continued from page 44)

## *X. castanea* Esp.

Scarce and local (Trail, 1878). Widely distributed and not rare (Reid, 1893).

A. Common. Blacktop; Derncleugh (Cowie, 1902). Not uncommon. Tyrebagger Hill; Kintore; Fintray; Corby Loch (R.M.P.). Ordie; Dinnet; Ballater (E.C.P.-C.).

K. Blackhall, scarce (Horne, 1904). St Cyrus N.N.R., 1961 (E.C.P.-C.).

## *X. sexstrigata* Haw.

A. & K. Common.

## *X. xanthographa* D. & S.

A. & K. Abundant.

## *X. agathina* Dup.

A. Inverurie, not uncommon (Trail, 1878). Nigg (Cowie, 1902). Forvie N.N.R. (R.M.P.). Ordie, 1971; Dinnet, 1971 (E.C.P.-C.). Bennachie, 1973, one (R.M.P.).

## *Naenia typica* L.

Common (Trail, 1878). Abundant (Reid, 1893).

A. Not uncommon. Murcar Links; Nigg; Hazelhead (Cowie, 1902). Scarce. Dyce, 1968, 1971 (R.M.P.). Aberdeen (E.P.).

K. Stonehaven (Dalglish, 1894). Durriss Forest, one, 1969 (E.P.).

## *Eurois occulta* L.

Local and scarce (Trail, 1878). Widely distributed and not uncommon (Reid, 1893).

A. Occasional Murcar Links; Nigg; Derncleugh (Cowie, 1902). Forvie N.N.R., one, 1970 (R.M.P.). Ballater, one, 1971 (E.C.P.-C.).

K. Blackhall, scarce (Horne, 1904).

## *Anaplectoides prasina* D. & S.

A. Fyvie, once (Trail, 1878). Very rare; Fyvie, Hazelhead and Pitcaple (Reid, 1893). Scarce; Hazelhead, Cluny and Monymusk (Cowie, 1902). Not uncommon; Newmachar, Dyce, Tyrebagger Hill, Bucksburn, Fintray (R.M.P.). Park, one, 1971 (E.P.). Dinnet, 1970; Cambus o'May, 1973 (E.C.P.-C.).

K. Blackhall, scarce (Horne, 1904).

## *Cerastis rubricosa* D. & S.

A. & K. Quite common.

**Anarta myrtilli L.**

A. & K. On all moors (Trail, 1878). On all inland moors, but scarce near the coast (R.M.P.).

**A. cordigera Thunb.**

A. Morrone Hill, rare (Trail, 1878). Braemar, scarce (Cowie, 1902). Linn of Dee, at about 1300', common, 1973 (D.B., R.M.P.). Between Kemnay and Inverurie, one, c. 1967 (W.McW.).

**A. melanopa Thunb.**

A. Braemar, rare (Trail, 1878); not uncommon (Cowie, 1902). Morrone Hill, 1960; Mountains north of Braemar, 1964 (E.C.P.-C.). Ben Avon, 3500', 1970 (R.M.P.). Beinn a Bhuird, 3600', 1970 (R.M.P.); 1973 (N.B.).

**Discestra trifolii Hufn.**

Local and rare (Trail, 1878).

A. Rare, Pitcaple (Reid, 1893).

K. Muchalls (Palmer, 1972).

**Hada nana Hufn.**

Abundant (Trail, 1878). Common, mostly on the coast (Esson, 1890).

A. Braemar (James, 1912). Common at Forvie N.N.R., also found regularly at Dyce, Newmachar, Kintore (R.M.P.), and Braemar (E.C.P.-C.), at Crathie, 1969 and Ballater, 1973 (E.C.P.-C.).

K. St. Cyrus (Gunning, 1896).

**Polia hepatica Clerck**

A. Castletown (Braemar), abundant (Trail, 1878). Ordie, 1973; Cambus o'May, 1973 (E.C.P.-C.).

K. Scarce, Banchory (Cowie, 1903).

**Mamestra brassicae L.**

A. & K. Common. Larvae on *Brassicae* (R.M.P.), especially cauliflower (M.S.), also gladioli in Aberdeen, 1969 (M.S.).

**Lacanobia thalassina Hufn.**

Local and scarce (Reid, 1893). Local but not rare (Trail, 1878).

A. & K. Quite common (R.M.P.).

**L. oleracea L.**

A. & K. Very common.

**L. biren Goeze: bombycina sensu auct.**

Local, rather scarce (Trail, 1878).

A. Not uncommon. Dorncleugh, Blacktop, Kintore (Cowie, 1902). Corby Loch, scarce but regular; Dyce, one, 1969 (R.M.P.).



Braemar, 1960, 1964 (E.C.P.-C.). Larvae on *Saxafraga azoides* at Ballater and Crathie, 1970 (E.C.P.-C.).

K. Blackhall (Horne, 1897). Banchory R.T.

**Ceramica pisi** L.

A. & K. Common.

**Hecatera bicolorata** Hufn.

A. Dyce (Palmer, 1972). Cults, one, 1971 (A.D.).

**Hadena rivularis** Fab.

A. Scotston Moor; Inverurie (Trail, 1878). Ballater, one, 1973 (E.C.P.-C.).

K. Not uncommon on the coast (Cowie, 1902). Banchory R.T., one.

**H. confusa** Hufn.

K. St. Cyrus (Gunning, 1896); larvae in seedheads of *Silene cucubalus*, 1961 (E.C.P.-C.). Frequent on the coast to Stonehaven (Cowie, 1902).

**H. bicruris** Hufn.

Common (Trail, 1878).

A. Fairly common, Kintore and Cluny (Cowie, 1902). Dyce, 1972 (R.M.P.).

K. St. Cyrus (Gunning, 1896). Fairly common on coast (Cowie, 1902). St. Cyrus N.N.R., 1961, larvae in seedheads of *Melandrium album* (E.C.P.-C.). Cove, Muchalls (R.M.P.).

**Cerapteryx graminis** L.

A. & K. Common.

**Tholera cespitis** D. & S.

A. Apparently local and scarce. Tyrebagger Hill and Kintore, 1968 (R.M.P.).

K. St. Cyrus N.N.R., 1961 (E.C.P.-C.). Cove, 1968 (R.M.P.). Banchory R.T., 1973.

**Panolis flammea** D. & S.

Scarce and local (Trail, 1878).

A. Murtle Den (Cowie, 1902). Braemar (W.McW.). Balgowrie, Aberdeen, one, 1971 (A.D.). Ballater, one larva, 1971 (E.C.P.-C.).

**Orthosia stabilis** D. & S.

Local but common (Trail, 1878). Common (Cowie, 1902).

A. & K. Common (R.M.P.). Reid (1893) omits this species—I suspect accidentally (R.M.P.).

**O. incerta** Hufn.

A. & K. Abundant.

**O. gothica** L.

A. & K. Abundant. Larvae on strawberry (M.S.); and gooseberry (Shaw, 1957).

**Mythimna conigera** D. & S.

A. & K. Common.

**M. ferrago** F.

A. & K. Fairly common.

**M. impura** Hübner.

A. & K. Very common. Larvae on various grasses (R.M.P.).

**M. pallens** L.

A. & K. Common.

**M. comma** L.

A. Apparently scarce. Kintore, one, 1968; Kemnay, 1969 (R.M.P.). Cambus o' May, one, 1973 (E.C.P.-C.).

K. Durris, 1969 (E.P.).

**Cucullia umbratica** L.

Locally common (Trail, 1878).

A. Not uncommon. Murcar links; Nigg; Blackburn; Echt (Cowie, 1902). Park, one, 1971 (E.P.).

**Cleoceris viminalis** F.

A. Braco (Reid, 1893). Occasional at Kintore, Burnharvie, Cluny, Monymusk (Cowie, 1902). Kintore, common, larvae on sallow; Forvie N.N.R., 1970 (R.M.P.). Ballater and Ordie, 1971 (E.C.P.-C.).

K. Banchory R.T., 1973.

**Dasypolia templi** Thunb.

Widespread but nowhere common (Trail, 1878). Occasional on coast south of New Bridge of Don (Cowie, 1902).

A. & K. Widespread and not uncommon (R.M.P.).

**Aporophyla lutulenta** D. & S.

Scarce and local (Trail, 1878).

A. Pitcaple (Reid, 1893). Scarce; Murtle Den, Blacktop, Cluny, Monymusk (Cowie, 1902). Brimmond Hill, one, 1968. (R.M.P.). Ballater and Dinnet, 1971 (E.C.P.-C.).

K. Muchalls, 1969 (R.M.P.). Banchory R.T., 1973.

**A. nigra** Haw.

Common (Trail, 1878).

A. & K. Common on the coast, scarcer inland (R.M.P.).

**Lithomoia solidaginis** Hübn.

A. Rare. Braemar; Echt (Trail, 1878). Dorncleugh, abundant; scarce elsewhere (Reid, 1893). Locally common. Blacktop; Murtle Den (Cowie, 1902). Tyrebagger and Brimmond Hill, common, 1968 (R.M.P.).

K. Blackhall, common (Horne, 1904). Banchory Devenick, 1968 (E.P.).

**Xylena vetusta** Hübn.

Local but common (Trail, 1878). Abundant (Reid, 1893).

A. Common. Cults; Blacktop; Dorncleugh; Murtle Den (Cowie, 1902). Nigg (E.P.). Old Aberdeen (D.B.).

K. Cove (E.P.). Muchalls (R.M.P.).

**X. exsoleta** L.

Common (Trail, 1878). Less common than *X. vetusta* (Reid, 1893).

A. Plentiful, localities as for *vetusta* (Cowie, 1902). Monymusk and Kemnay, scarce, Dyce, one (1972) (R.M.P.). Old Aberdeen, not uncommon (D.B.).

**Allophyas oxyacanthae** L.

Rather scarce (Trail, 1878).

A. Scarce, larvae not uncommon at Pitcaple (Reid, 1893). Common. Rubislaw; Mannofield; Murtle Den (Cowie, 1902). Not uncommon; Dyce, Bucksburn, larvae on apple (R.M.P.). Aberdeen (E.P.).

**Dichonia aprilina** L.

Rather scarce (Trail, 1878).

A. Rare. Murtle Den; Tillyfourie; Pitcaple (Reid, 1893). Tillyfour oak wood near Monymusk (W. McW., R.M.P.). Dinnet oak wood N.N.R. (D.B.).

**Blepharita adusta** Esp.

Abundant (Trail, 1878).

A. Scarce, Corby Loch and Dyce (R.M.P.). Crathie; Braemar (E.C.P.-C.).

**Antitype chi** L.

Common (Trail, 1878).

A. Locally common. Bucksburn; Dyce (R.M.P.). Aberdeen (E.P.). Ballater (E.C.P.-C.).

K. Muchalls (R.M.P.). Cove (E.P.).

**Eupsilia transversa** Hufn.

Local but common (Trail, 1878).

A. Common. Hazelhead; Murtle Den (Cowie, 1902). Aberdeen, 1943 (G.M.).

K. Muchalls, common (R.M.P.).

***Conistra vaccinii* L.**

A. & K. Locally common (R.M.P.).

***Agrochola circellaris* Hufn.**

Abundant (Trail, 1878).

A. & K. Fairly common (R.M.P.).

***A. iota* Clerck**

A. Inverurie, not uncommon (Trail, 1873). Pitcaple (Reid, 1893). Kintore, common (R.M.P.).

K. Durris Forest (E.P.).

***A. macilentia* Hubn.**

A. & K. Not uncommon (R.M.P.).

***A. helvola* L.**

Rare (Trail, 1878). Very common (Esson, 1890). Locally abundant (Reid, 1893).

A. Common at Cults, Dorncleugh, Blacktop, Murtle Den (Cowie, 1902). Fintray; Kintore (R.M.P.).

K. Banchory Devenick (E.P.). Banchory R.T.

***A. litura* L.**

A. & K. Common (R.M.P.).

***A. lychnidis* D. & S.**

Muchalls (Palmer, 1972).

***Parastichtis suspecta* Hübner.**

Widely distributed and not uncommon (Reid, 1893).

A. Rare. Braemar; Inverurie; Strathdon (Trail, 1878). Locally common. Countesswells; Blacktop; Murtle Den (Cowie, 1902). Braemar, 1959 Dinnet, 1971 (E.C.P.-C.) Kintore;; Fintray (B.M.P.)

K. Cove (E.P.). Banchory R.T.

***Atethmia centrargo* Haw.**

K. Banchory R.T., two, 1973.

***Xanthia togata* Esp.**

Scarce and local (Trail, 1878). Not common (Esson, 1890). More abundant than *X. ictcritia* (Reid, 1893).

A. Frequent; Rubislaw, Newhills, Nigg, Murtle Den (Cowie, 1902). Locally common; Forvie N.N.R., Corby Loch, Dyce (R.M.P.). Kemnay (W.McW.). Larvae in sallow catkins (R.M.P.).

K. Banchory (R.M.P.).

***X. ictcritia* Hufn.**

A. & K. Common. Larvae on beech (E.P.).



***Acronicta leporina* L.**

A. Inverurie (Trail, 1878). Fetternear, larvae (Reid, 1893). Cluny and Monymusk, scarce (Cowie, 1902). Scarce; larvae on birch, Dinnet Muir, 1968 (E.P.); 1969 (R.M.P.); 1971 (E.C.P.-C.). Braemar, one, 1973 (N.G.).

K. Banchory (Reid, 1893). Blackhall, scarce (Horne, 1904). Glen Esk, a larva, 1969 (R.M.P.). Banchory R.T., one, 1973.

***A. psi* L.**

A. & K. Common. Larvae on apple, cherry, hawthorn (R.M.P.); rose (M.S.); rowan, *Malus* (E.C.P.-C.).

***A. menyanthidis* Esp.**

Not uncommon, larvae generally in wet bogs and heaths (Reid, 1893).

A. Common; Scotston moor and Inverurie (Trail, 1878). Plentiful; Cults, Culter, Murtle Den (Cowie, 1902). Braemar (James, 1912). Scarce on mosses and moors, larvae on heather at Corby Loch and Forvie N.N.R. (E.P.).

K. Blackhall (Horne, 1904).

***A. euphorbiae myricae* Guen.**

Locally common (Trail, 1878). Common, larvae on low plants (Reid, 1893).

A. Dyce. one. 1972; larva more often than imago and every year at Dyce on blackcurrant, once on potato (R.M.P.). Tyrebagger Hill, larva on ribwort plantain, 1968 (R.M.P.). Crathie, larva on *Saxifraga azoides*, 1970; Ballater, larva on *S. azoides*, 1971 (E.C.P.-C.).

K. Blackhall (Horne, 1904). Cove, a larva on ribwort plantain, 1973 (E.P.).

***A. rumicis* L.**

A. & K. Not uncommon. Larvae on willow and sweet gale.

***Cryphia domestica* Hufn.**

A. Aberdeen (Trail, 1878). Dyce (Reid, 1893). Rubislaw; Bridge of Don (Cowie, 1902). Dyce and Bucksburn, common, 1973. (R.M.P.), Aberdeen, common (E.P.)

K. Stonehaven (Trail, 1878). Cove (E.P.).

***Amphipyra tragopoginis* Clerck.**

A. & K. Generally common. Larvae on willow, dock, lupin.

***Rusina ferruginea* Esp.**

A. & K. Common.

***Thalophila matura* Hufn.**

Not common (Esson, 1890).

A. Collieston (Reid, 1893). Balgownie (A.D.). Rattray Head,

1954; Forvie N.N.R., 1957 (E.C.P.-C.).

K. St. Cyrus N.N.R., 1961 (E.C.P.-C.).

**Euplexia lucipara L.**

A. & K. Quite common.

**Phlogophora meticulosa L.**

Common (Trail, 1878).

A. Frequent. Hazelhead; Blacktop (Cowie, 1902). Aberdeen, not uncommon (E.P.). Dyce; Newmachar (R.M.P.). Larvae on potato (Shaw, 1962).

K. Cove (E.P.).

**Cosmia trapezina L.**

Rare (Trail, 1878).

A. Murtle Den (Reid, 1893). Nigg (Cowie, 1902). Old Aberdeen, one, 1971 (D.B.). Dinnet, one, 1971; Ballater, two, 1971 (E.C.P.-C.). Dyce, one, 1972 (R.M.P.).

**Hyppa rectilinea Esp.**

Local, not rare (Trail, 1878). Sometimes common (Esson, 1890).

A. Frequent. Cults; Countesswells; Blacktop (Cowie, 1902). Kemnay area, c. 1960-65 (W.McW.). Braemar, not uncommon, 1959-64 (E.C.P.-C.).

K. Blackhall (Horne, 1904). Banchory Devenick, one, 1968 (E.P.).

**Apamea monoglypha Hufn.**

A. & K. Abundant.

**A. lithoxylaea D. & S.**

Local and scarce (Trail, 1878). Not rare on coast (Reid, 1893).

A. Rather scarce. Bucksburn; Dyce (R.M.P.). Aberdeen, formerly common, now only occasional (E.P.). Ordie, 1973 (E.C.P.-C.).

K. Not uncommon. Portlethen and Muchalls (Cowie, 1902). Stonehaven area (Dalglish, 1894).

**A. exulis assimilis Doubleday.**

A. Very rare (Trail, 1878). Murtle Den (Cowie, 1902). Ballater, one, 1971 (E.C.P.-C.).

**A. crenata Hufn.**

A. & K. Common.

**A. furva britannica Cockayne.**

Rare and local (Trail, 1878). Widely distributed but scarce, commonest on the Kincardine coast (Reid, 1893).

A. Scarce. Murcar links; Nigg (Cowie, 1902). Dinnet, 1971

(R.M.P.). Cambus o'May, 1973 (E.C.P.-C.).

K. Scarce. Muchalls (Cowie, 1902). Cove, quite common (E.P.). Muchalls, quite common (R.M.P.). St. Cyrus, 1961 (E.C.P.-C.).

**A. remissa** Hübn.

A. K. Common.

**A. unanimitis** Hübn.

Rare and local (Trail, 1878).

A. Near Inverurie, very rare (Reid, 1893). Near Dyce, two, 1969 (R.M.P.).

**A. sordens** Hufn.

A. & K. Widespread and not uncommon.

**Oligia strigilis** L.

Singly, very rare (Reid, 1893).

A. Scotston moor, one; Echt, one (Trail, 1878). Scarce. Hazelhead; Rubislaw; Cults; Blacktop (Cowie, 1902). Dyce, quite common (R.M.P.). Aberdeen, quite common (E.P.). Dinnet, 1971; Ellon, 1973 (R.M.P.). Ballater, 1971; Ordie, 1973 (E.C.P.-C.).

**O. latruncula** D. & S.

A. Newmacher, one, 1968 (R.M.P.).

**O. fasciuncula** Haw.

A. & K. Common.

**Mesoligea literosa** Haw.

Local, not very common (Trail, 1878).

A. Murcar links; Nigg; Cults; Blacktop (Cowie, 1902). Common on the coast, Nigg (E.P.), and Balmedie (R.M.P.), scarcer inland at Dyce (R.M.P.). Ballater, 1971 (E.C.P.-C.).

K. Common on the coast, at Cove (E.P.), and Muchalls (R.M.P.). St. Cyrus N.N.R., 1961 (E.C.P.-C.).

**Mesapamea secalis** L.

A. & K. Abundant. Larvae on barley (M.S.).

**Photodes minima** Haw.

A. Not common. Nigg; Loch of Park; Old Aberdeen (Trail, 1878). Scarce. Murcar links; Scotston moor; Murtle Den (Cowie, 1902). Widespread and in places abundant (R.M.P.).

K. Durris, common (E.P.). Banchory R.T.

**P. pygmina** Haw.

Locally common (Trail, 1878). Very common, moors and waste ground (Reid, 1893).

A. Common on Tyrebagger Hill, Corby Loch and Fintray (R.M.P.).

K. Cove Bay (E.P.). Banchory R.T.

**Luperina testacea D. & S.**

Abundant (Trail, 1878). Abundant on coast, rarer inland (Reid, 1893).

A. Common. Murcar links; Nigg (Cowie, 1902). Forvie N.N.R., common Dyce, one, 1973 (R.M.P.).

K. Cove, common (E.P.). St Cyrus N.N.R., 1961 (E.C.P.-C.).

**Amphipoea lucens Freyer.**

A. Common at Corby Loch, Newmachar and Newburgh (R.M.P.). Ballater, 1971; Ordie, 1971 (E.C.P.-C.).

K. Banchory R.T.

**A. crinanensis Burrows.**

A. Ordie, one, 1971 (E.C.P.-C.).

**A. oculea L. : nictitans L.**

A. Old Aberdeen (D.B.). Common at Balmedie. Kintore and Fintray (R.M.P.). Ordie, 1971; Ballater, 1971 (E.C.P.-C.).

K. St Cyrus N.N.R., 1961 (E.C.P.-C.). Banchory R.T.

Note: Owing to confusion over these *Amphipoea* species prior to 1941, the old records for "*nictitans*" and "*var. paludis*" are given separately hereunder. They are *nictitans*: abundant on coastal sandhills, at Echt and Inverurie (Trail, 1878); common. *var. paludis*, one or two (Reid, 1893); *nictitans*: very common, Murcar links, Nigg, Cults, Blacktop (Cowie, 1902).

**Hydraecia micacea Esp.**

A. & K. Abundant. Larvae most commonly on potato, also on strawberry, raspberry, iris, rhubarb (M.S.).

**Gortyna flavago D. & S.**

A. Old Aberdeen, one (Trail, 1878). Dyce, very common since 1970; Corby Loch; Newmachar (R.M.P.). Newburgh (D.B). Turriff (D.G.).

K. Banchory, one (Trail, 1878). Muchalls; Stonehaven (Cowie, 1902). Banchory R.T.

**Celaena haworthii Curt.**

Local but abundant (Reid, 1893).

A. Local. Stocket moor (Trail, 1878). Corby Loch, common (E.P.). Near Fintray, common (R.M.P.). Forvie N.N.R., one, 1975 (E.C.P.-C.); one, 1971 (R.M.P.). Dinnet, 1971; Ordie, 1971 (E.C.P.-C.).

K. Banchory R.T.

**C. leucostigma Hubn.**

A. Rare. Fyvie (Trail, 1878). Kemnay (W.McW.); one, 1973 (G.D.).



**Nonagria typhae** Thunb.

A. Newmachar; Newburgh (Palmer, 1972).

**Rhizedra lutosa** Hübn.

A. Fyvie, one (Trail, 1878). Newmachar, 1968 (R.M.P.).

K. Banchory-Devenick, 1968 (E.P.).

**Hoplodrina blanda** D. & S.

A. Rare. Old Aberdeen; Inverurie (Trail, 1878). Murcar links, common (Cowie, 1902).

K. Stonehaven, one (Dalglish, 1894). On the coast (Horne, 1897). St. Cyrus N.N.R., 1961 (E.C.P.-C.). Cove, not uncommon (E.P.).

**Caradrina morpheus** Hufn.

Excessively rare (Reid, 1891).

A. Old Aberdeen, one (Trail, 1878). Murcar links (Cowie, 1902). Dyce, common; Monymusk (R.M.P.). Ballater, 1973 (E.C.P.-C.).

K. Muchalls (Cowie, 1902).

**C. clavipalpis** Scop.

A. & K. Usually common.

**Stilbia anomala** Haw.

Scarce (Trail, 1878). Rare (Esson, 1890). Abundant in many localities (Reid, 1893).

A. Rare. Blacktop; Kintore (Cowie, 1902). Common on the coast. Balmedie; Forvie N.N.R.; Newmachar; Old Meldrum; Dyce (R.M.P.). Ballater, 1971; Ordie, 1971; Dinnet, 1971 (E.C.P.-C.).

K. Cove, common (E.P.). Banchory R.T.

**Pseudoips fagana** F.

Not common (Trail, 1878). Common in oak woods (Reid, 1893).

A. Kemnay (W.McW.).

K. Banchory, larvae on oak (E.P.).

**Colocasia coryli** L.

A. Scarce and local. Echt; Fyvie; Inverurie; Peterhead (Trail, 1878). Common. Larvae on sallow (R.M.P.). Larvae on *Betula pubescens* (E.C.P.-C.).

K. Common (R.M.P.).

**Diachrysia chrysis** L.

A. & K. Common.

**Polychrysia moneta** F.

A. First recorded 1945 (G.M.). Aberdeen, two reared from pupae on larkspur; Kemnay, common, c. 1948-55 (W.McW.). Aberdeen, 1956, 1958 (G.M.). Not recorded since.

**Plusia festucae L.**

Scarce (Trail, 1878).

A. Frequent. Rubislaw; Mannofield (Cowie, 1902). Dyce, common (R.M.P.). Aberdeen (E.P.). Kemnay (W.McW.). Glentanan, 1969 (E.P.). Braemar, 1970 (E.C.P.-C.); 1973 (N.G.). Ordie, 1971 (E.C.P.-C.).

K. Frequent. Portlethen; Muchalls (Cowie, 1902).

Note: The early published records may have included those of the next species.

**P. putnami gracilis Lempke.**

A. Less common than *P. festucae*. W. McWilliam has eleven specimens in his coll., all from Kemnay, four of which are referable to this species, the rest to *festucae*. Dyce, one, 1972 (R.M.P.).

**Autographa gamma L.**

A. & K. Common, usually in the autumn.

**A. pulchrina Haw.**

A. & K. Quite common.

**A. jota L.**

A. Cluny, scarce (Cowie, 1902). Dyce, common (R.M.P.). Aberdeen, regularly (E.P.). Braemar, 1970; Ballater, 1973 (E.C.P.-C.).

K. Banchory-Devenick (E.P.). St. Cyrus N.N.R., 1961 (E.C.P.-C.).

**A. bractea D. & S.**

Rare (Esson, 1890).

A. Echt; Peterhead (Trail, 1878). Not uncommon. Rubislaw; Mannofield (Cowie, 1902). Dyce, not uncommon; Brimmond Hill (R.M.P.). Aberdeen (E.P.). Braemar, 1970; Cambus o' May, 1970, 1973; Dinnet, 1973; Ordie, 1973; Ballater, 1973 (E.C.P.-C.).

K. Muchalls (Trail, 1878). Portlethen (Cowie, 1902). Blackhall (Horne, 1904). Muchalls (R.M.P.). Cove (E.P.). St. Cyrus N.N.R., 1961 (E.C.P.-C.).

**Syngrapha interrogationis L.**

A. Abundant at Braemar, rare elsewhere (Trail, 1878). Occasional. Cults; Hazelhead; Blacktop (Cowie, 1902). Common in the highland areas. Linn of Dee; Braemar; Dinnet; Glentanan; Forest of Birse (R.M.P.).

**Abrostola triplasia L.**

A. & K. Not uncommon. Larvae on *Urtica*.

**Callistege mi Clerck.**

A. Aberdeen (Trail, 1878). Kintore (Cowie, 1902); common, 1972 (R.M.P., E.P.). Dinnet (Palmer, 1972).

(to be continued)



## **Exotic Entomological Specimens**

**LEPIDOPTERA — COLEOPTERA — MISCELLANEOUS  
INSECTS OF THE FINEST QUALITY WITH DATA**

20 page Illustrated Catalogue, 20p

**LIVESTOCK** — please send 15p for current catalogue of Ova,  
Larvae, Pupae, Cocoons, etc.

**R. N. BAXTER**

**16 BECTIVE ROAD, FOREST GATE, LONDON, E7 0DP.  
ENGLAND**

*FOR A PERSONAL AND INTERESTED SERVICE*

In your replies please mention "The Entomologist's Record"

## **ENTOMOLOGICAL CABINETS**

**Ten Drawer Unit Insect Sections**

---

*Sole manufacturers of the "Hill" Interchangeable  
Unit System formerly produced by J. J. Hill & Son Ltd.*

---

**R. Cattle, Limited**

*Precision Woodworkers*

P.O. BOX NO. 1

**Oxford Road, Gerrards Cross, Bucks.**

**Tel. Gerrards Cross 87131 (4 lines)**



# IMAGO BUTTERFLIES

LEPIDOPTERA SUPPLY & RESEARCH SPECIALISTS

Suppliers of Livestock — Exotic and European

Over forty species listed

Plus prospective list of species we hope to supply in the near future  
General Catalogue available on receipt of 30p (Overseas \$1)

This includes subscription to our annual mailing lists

---

62 HIGH STREET, CROYDON, SURREY, ENGLAND

Please mention the Entomologist's Record

---

## FOR THE ENTOMOLOGIST

Apparatus, Books, Cabinets and Set Specimens

Price lists of the above are issued from time to time so if you would like to receive regular issues please send me a postcard stating your interests

---

**L. CHRISTIE**

137 Gleneldon Road, Streatham, London, S.W.16, 2BQ, England

(Postal business only)

*Official agent for publications of the Amateur Entomologist's Society*

---

**the BUTTERFLY FARM LTD. (Founded 1894)**

**Bilsington, Ashford, Kent England TN25 7JW. Tel. Ham St. 2513**

---

As the oldest farm in the world we are justly proud of our reputation as suppliers of the finest entomological materials.

For livestock and preserved specimens from all over the world; books new or old; breeding, storage and collecting equipment; educational displays, please write for lists and details of our Mailing Index.

We urgently need suppliers of surplus collections, books and cabinets, and also reliable suppliers of livestock.

Visitors especially welcome to look around the Butterfly Farm, please phone in advance. See our living and museum displays and our British Wildlife Sanctuary—to which a small charge will go.

---



---

## THE AMATEUR ENTOMOLOGISTS' SOCIETY

---

The Society was founded in 1935 to cater especially for the younger or less experienced Entomologist.

For full details of publications and activities, please write (enclosing 3p stamp to cover postage) to:—**R. D. HILLIARD**, Hon. Advertising Secretary, A.E.S., 18 Golf Close, Stanmore, Middlesex.

---

---

## BRITISH NATURALISTS' ASSOCIATION



has twenty active branches in Britain and a world-wide membership. Its official organ, *Country-Side* (published three times a year), is the oldest-established British magazine devoted to general natural history

Membership subscription 75p per annum

*Full details and application form obtainable from:*

**B.N.A., 'Willowfield', Boyneswood Road, Four Marks, Alton, Hants**

---

---

## THE NATURALIST (founded 1875)

*A Quarterly Illustrated Journal of Natural History*

---

**Edited by W. A. SLEDGE, Ph.D., B.Sc.**

Annual subscription: £2.00 (post free)

Single numbers 50p

---

*Separates of the collected instalments of the:—*

### **LEPIDOPTERA OF YORKSHIRE (Macrolepidoptera)**

which appeared serially in *The Naturalist* (1967-1970) are also available on application. Price 50p, plus 4p postage

**The Editor of the Naturalist,**

Department of Botany, The University, Leeds, LS2, 9JT

---

# AURELIAN BOOKS

---

Antiquarian, Recent and New Books on Insects, Plants, Birds, Mammals and General Natural History bought and supplied

*Libraries purchased — Catalogues issued — Personal requirements searched for. Please advise us of your wants.*

Write or telephone

**AURELIAN BOOKS, Tumbledown Dick's, Green Tye,  
Much Hadham, Hertfordshire.**

**Telephone: Much Hadham 2676**

**POSTAL BUSINESS ONLY**

---

## EXCHANGES AND WANTS

*For Sale.*—Separates of "Emmet's Notes on some of the British Nepticulidae". Price 35p per copy. Printed covers for the collection of 5 parts.—Apply to S. N. A. Jacobs, 54 Hayes Lane, Bromley BR2 9EE, Kent.

*Back numbers.*—Our supplies of certain back numbers are now a little reduced and we would be willing to buy in a few copies of Vols.: 75, 77, 79, 82 and 83 at subscription rates. Due to an error there are now no further stocks of the January 1973 issue, we would therefore be indebted to anyone who could part with this issue.—S. N. A. Jacobs, 54 Hayes Lane, Bromley, Kent.

*The Maidstone Museum* have recently set up a Kent Biological Archives and Record Centre, which can now receive records based on the tetrad system (2 Km. sq.), for all insect orders. In particular, a scheme is being set up to record both Macro and Microlepidoptera from 1971 onwards. This is to run in parallel with the very successful plant scheme. The records will be available to any serious student of the Fauna or Flora of Kent. This ambitious scheme obviously must enlist the help of as many resident and visiting Lepidopterists as possible. For further information, please write to: S. E. Whitebread, 2 Twin Cottage, Grove Farm, Higham, Nr. Rochester, Kent, ME3 7NX. Records for other insect orders should be sent to Mr E. Philp at the Maidstone Museum, St Faith's Street, Maidstone, Kent.

*Offers wanted* for the bound volumes 9, 10 and 12 of the Entomologist Record. Replies to Colin Pratt, 5 View Road, Peacehaven, Newhaven. Sussex.

*Wanted.* — Samples of *Apamea monoglypha* (Dark Arches) from MV traps, to aid an investigation into the frequency of melanism in this species. We would like to obtain random samples, caught during the 1974 season, from any locality in the British Isles. If you think you might be able to help and would like further details please write to — J. Muggleton, Dept. of Zoology, University of Manchester, Manchester M13 9PL.

---

---

# THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

(Founded by J. W. TUTT on 15th April 1890)

---

*The following gentlemen act as Honorary Consultants to the magazine:*  
*Orthoptera:* D. K. Mc. E. KEVAN, Ph.D., B.Sc., F.R.E.S., *Coleoptera:* A. A. ALLEN, B.Sc.; *Diptera:* E. C. M. d'ASSIS-FONSECA, F.R.E.S.

---

## TO OUR CONTRIBUTORS

All material for the TEXT of the magazine must be sent to the EDITOR at St Teresa, 1 Hardcourts Close, West Wickham, Kent.

ADVERTISEMENTS, EXCHANGES and WANTS to: E. H. WILD, L. Inst. Biol., 112 Foxearth Road, Selsdon, Croydon, Surrey, CR2 8EF. Specimen copies supplied by Mr Wild on payment of 40p or sterling equivalent which will be taken into account if the person in question becomes a full subscriber.

Changes of address, also enquiries regarding Back Numbers, Volumes and Sets of Volumes, to: S. N. A. JACOBS, 54 Hayes Lane, Bromley, BR2 9EE, Kent.

Subscriptions should be sent to the Treasurer, P. J. RENSHAW, 53 Links Road, West Wickham, Kent BR4 0QN, England.

REPRINTS: 25 copies, taken straight from the magazine are sent gratis to contributors of articles; these may contain extraneous matter. More formal reprints from re-set type may still be had at cost price, and orders for these should be given, at the latest, with the return to the Editor of the corrected proof.

ILLUSTRATIONS are inserted on condition that the AUTHOR DEFRAYS THE COST.

Contributors are requested not to send us Notes or Articles which they are sending to other magazines.

All reasonable care is taken of MSS, photographs, drawings, maps, etc., but the Editor and his staff cannot hold themselves responsible for any loss or damage.

---

## SPECIAL NOTICE

The Editor would be willing to consider the purchase of a limited number of certain back issues.

---



---

# SARUMAN

(incorporating the Butterfly Centre)

Business Reg. No. 1685058

V.A.T. Reg. No. 210 4043 36



Specialists in British and World Lepidoptera and Entomological  
Equipment — Literature — Livestock — Photographs

58 HIGH STREET, TUNBRIDGE WELLS,  
KENT TN1 1XF ENGLAND

Telephone: Tunbridge Wells 31926

Hours: 9.30 a.m.—5.30 p.m. except Wednesdays and Sundays

---

Directors: Paul Smart, F.R.E.S., Gita Smart; Consultant: John Muirhead;  
Technical Staff: Trevor Scott, Chris Samson, F.R.E.S.

---

Main catalogue 'Butterflies Presented by Saruman'. 1000 plus  
species listed: equipment: books: etc., 40pp inc. colour plates  
85p plus 10p postage

Supplementary lists (10 issued per year): 40p per annum.

---

Wanted to Purchase — Collections, Cabinets, Entomological  
libraries, large or small; Livestock, etc.

---

In your replies please mention  
'The Entomologist Record'

---

# CONTENTS

Early Stages of <i>Aloeides thyra</i> (L.) (Lep.: Lycaenidae) with Notes on Ant Association, Distribution and General Ecology of the Species. A. J. M. CLAASSENS and C. G. C. DICKSON .....	253
Discovery of Larvae and Natural Foodplant of Least Carpet, <i>Idaea vulpinaria</i> H.-S. ( <i>rusticata</i> sens. auct.) (Lep.: Geometridae). B. K. WEST .....	258
Grote in Hildesheim. R. S. WILKINSON .....	259
Note on some Water Bugs (Hemiptera-Heteroptera) Collected in Cape Clear Island, West Cork. T. K. McCARTHY .....	264
Notes on British Cionini (Col.) mainly arising out of Mr Cunningham's findings in the Portsmouth Area. A. A. ALLEN .....	265
Dimorphism in <i>Papilio Pupae</i> . D. G. SEVASTOPULO .....	269
Lepidoptera of Aberdeenshire and Kincardineshire. R. M. PALMER .....	273
Notes and Observations:	
<i>Lycaena phlaeas</i> L. ab. <i>cuprinus</i> Peyerimhoff in the Isle of Wight. T. D. FEARNEHOUGH .....	264
<i>Pyronia tithonus</i> L. ab. <i>albidus</i> Cockerell in the Isle of Wight. T. D. FEARNEHOUGH .....	272







# SPECIAL INDEX

Vol. 86, 1974

For British Lepidoptera this Index follows the nomenclature of "A Check List of British Insects", Part 2, 1972 by Kloet & Hincks. Where the contributor has used a synonym, a cross reference is given. Regarding all the other Orders, any newly described taxa (species, genera, etc.) are distinguished by bold (Clarendon) type, and taxa new to the British fauna by an asterisk.

## LEPIDOPTERA

	PAGE
abbreviata (Eupithecia) .....	98
absinthii (Cucullia) .....	61
aceris (Stigmella) .....	151
acheloia (Byblia) .....	21
achine (Lopinga) .....	49
achlys (Eurypheura) .....	20
actaea (Satyrus) .....	52, 53, 209, 210, 212
acteon (Thymelicus) .....	48, 52, 213
acuminatus (Charaxes) .....	18
adippe (Argynnis) ...	49, 71, 87, 99, 191, 212, 244
admatha (Acraea) .....	23
adrasta (Bematistes) .....	22
adusta (Blepharita) .....	13, 87, 277
advenaria (Cepphis) .....	60, 87
aegeria (Pararge) ...	2, 4, 33, 48, 73, 98, 99, 189, 213, 229
aeneella (Stigmella) .....	122, 151
aeriferanus (Ptycholomoides) .....	71, 217
aescularia (Alsophila) ...	84, 97, 120, 183, 214
aestivaria (Hemithea) .....	101
aethiops (Erebia) .....	37
affinis (Cosmia) .....	90, 163
affinitana (Phalonidia) .....	70
affinitatum (Perizoma) .....	99
aganice (Bematistes) .....	22
agathina (Xestia) .....	13, 273
agestis (Aricia) ...	3, 5, 86, 101, 138, 189, 192
aglaja (Argynnis) ...	11, 37, 50, 71, 190, 191, 212, 237, 244
aglea (Danaus) .....	56
agrioniae (Ectoedemia) .....	80
albicans (Lysandra) .....	209, 210, 213
albicilla (Salebriopsis) .....	218, 219
albicillata (Mesoleuca) ...	87, 116, 164
albicolon (Sideridis) .....	34
albifasciella (Ectoedemia) ...	108, 130, 147, 206
albina (Appias) .....	56
albigunctata (E. tripunctaria) .....	
albovenosa (Simyra) .....	88, 102
alceae (Carcharodus) ...	1, 5, 213, 226
alcetas (Everes) .....	16
alchymista (Catephia) .....	172
alciphron (Lycaena) .....	45, 48, 210, 213
alcon (Maculinea) .....	17
alcyone (Hipparchia) .....	51, 52, 209, 212
alecto (Chaerocampa) .....	2, 5

	PAGE
alexis (Glaucopsyche) .....	45, 48
algae (Archanara) .....	102
algira (Dysgonia) .....	5
allous (Aricia) .....	213
alni (Acronicta) .....	87, 223
alniana (Precis) .....	56
alniaria (Ennomos) .....	137
alphaeus (Capys) .....	169
alpicola (Xestia) .....	44
alpinalis (Udea) .....	236
alpium (Moma) .....	34, 60, 117, 218
alta (Neptis) .....	21
alternata (Epirrhoë) .....	12
amanga (Axiocerses) .....	133
amarah (Anthene) .....	133
amata (T. griseata) .....	
ambigua (Hoplodrina) .....	60, 139
amerika (Pentila) .....	131
anacardii (Salmis) .....	21
anceps (Apamea) .....	34
anceps (Peridea) .....	86, 87
anchises (Coeliades) .....	134
andraemon (Papilio) .....	244
anella (Lamoria) .....	45, 48
anemosa (Acraea) .....	23
angustana (Eupoecilia) .....	224
annulata (Cyclophora) .....	87
anomala (Stilbia) .....	12, 283
antalus (Virachola) .....	132
anthelea (Pseudochazara) .....	2, 4
antilope (Precis) .....	22
antiopa (Nymphalis) .....	34, 52, 96, 229
antiqua (Orgyia) .....	14, 41, 94
anyana (Mycalasis) .....	18
apelles (Spindasis) .....	132
aphaeoides (Epamera) .....	132
apollo (Parnassius) .....	51, 209, 210, 212, 226
aprilina (Dichonia) .....	277
aquilonaris (B. sifanica) .....	
arcania (Coenonympha) .....	51, 213
arceuthata (E. intricata) .....	
arduinna (Melitaea) .....	15
arela (Semalea) .....	136
areola (Xylocampa) .....	97
arethusia (Arethusana) ...	52, 209, 210, 212
argentimaculella (Infurcitanea) ...	170
argiades (Everes) .....	16
argiolus (Celastrina) ...	2, 3, 5, 47, 48, 59, 192, 211, 213, 232
argus (Plebejus) ...	51, 100, 191, 192, 213

	PAGE		PAGE
ariadne (Ariadne) .....	56	bicuspis (Harpysia) .....	146
aridella (Pediastia) .....	70	bifaciata (Perizoma) ... 88, 116,	164
arion (Maculinea) .....	118	bilineata (Camptogramma) .....	12
aristaeus (Hipparchia) .....	16, 60	biloba (Autographa) .....	172
aristolochiae (Atropheneura) .....	56	<i>bilunaria</i> (S. dentaria) .....	
armigera (Helicoverpa) .....	124, 214	bimaculata (Lomographa) .....	87
artaxerxes (Aricia) .....	36	binaria (Drepana) .....	102, 138, 145
ashworthii (Xestia) .....	12	birens (Laconobia) .....	274
aslauga (Teriomima) .....	131	biseriatus (Acada) .....	136
asperaria (Rhoptria) .....	48	bistorta (Ectropis) .....	235
aspersana (Acleris) .....	224	blanda (Eurema) .....	56
asteris (Cucullia) .....	60	blanda (Hoplodrina) .....	283
asterope (Ypthima) .....	18	blomeri (Discoloxia) .....	87, 223
atalanta (Vanessa) ... 4, 14, 36,		boeticus (Charcharodus) .....	213
57, 59, 60, 73, 87, 94,		boeticus (Lampides) ... 2, 4, 133,	
193, 212,	229	213, 232	
athalia (Mellicta) ... 47, 48, 49,		bohemani (Charaxes) .....	19
99,	190	boisduvali (Pseudacraea) .....	20
Atomaria (Ematurga) ... 11, 48,	197	bolina (Hymnolimnes) .....	56
atricapitella (Stigmella) .....	103, 153	bombycina (Polia) .....	163
atrifrontella (Ectoedemia) ... 108,	148	borbonica (Pelopidas) .....	136
atropos (Acherontia) .....	5, 24,	bore (Oeneis) .....	83
28, 39,	246	borelii (Gortyna) .....	73, 104, 140
atymnus (Loxura) .....	56	bractea (Autographa) ... 14, 116,	
aubyni (Acraea) .....	131	219, 235,	284
augur (Graphiphora) .....	44	braesia (Acraea) .....	23
aurago (Xanthia) .....	163	branderiana (Pseudosciaphila) ... 218	
aurata (Pyrausta) .....	5	brassicae (Mamestra) .....	138, 274
aurella (Nepticula) .....	79, 151	brassicae (Pieris) .....	4, 11, 35,
aurinia (Euphydryas) ... 15, 37,		48, 212,	227
87,	190	braueri (Phasis) .....	179
auromarginella (Nepticula) .....	129	brevilinea (Photodes) .....	88
ausonia (Euchloë) .....	3, 4, 46,	brigitta (Eurema) .....	56
48,	196	briseis (Hipparchia) .....	34, 53, 212
australis (Aporophila) .....	139	brumata (Operophoptera) .....	182
australis (Colias) .....	52, 212	brunnea (Diarsia) ... 44, 87, 99,	
autumnaria (Ennomos) .....	60	100,	115
avellana (Apoda) .....	60	brunneata (Semiothisa) .....	236
aversata (Idaea) .....	70, 116	brutus (Charaxes) .....	19
ayresii (Lachoptera) .....	22	bucephala (Phalera) .....	40, 223
baja (Xestia) .....	13, 44	buxtoni (Hypolycaena) .....	132
bajularia (Conibaena) ... 100, 101,	146	cacta (Salamis) .....	21
baliodactylus (Pterophorus) .....	58	cactorum (Cactoblastis) .....	29
banksiella (Epischnia) .....	238	caeculus (Hemiolaus) .....	132
barkeri (Euchrysops) .....	133	caerulea (Pilodeudorix) .....	132
basiguttella (Stigmella) .....	103	caesar (Andronymus) .....	136
bathseba (Pyronia) .....	213	caesiata (Entephria) .....	12
batis (Thyatira) .....	100, 138	caja (Arctia) .....	41, 102
baton (Philotes) .....	196	calabra (Rhodostrophia) .....	48
bellargus (Lysandra) ... 24, 192,		c-album (Polytonia) ... 60, 140,	
211, 213,	232	145, 188, 192, 193, 210,	212
bellieri (Pyrgus) .....	51, 52	cambrica (Venusia) .....	89, 236
bembeciformis (Sphinx) .....	218	camilla (Ladoga) .....	100, 101, 191
bennetii (Agdistis) .....	70	camillus (Cyrestis) .....	21
betulae (Thecla) .....	62, 190	campina (Mycalasis) .....	18
betularia (Biston) .....	99, 102,	candiope (Charaxes) .....	18
116,	176	caniola (Eilema) .....	45, 48
betulicola (Stigmella) .....	151	canopus (Netrobalame) .....	135
bibulus (Lachnocnema) .....	132	capenas (Ampittia) .....	135
<i>bicolorana</i> (B. prasinana)		captinacula (Photodes) .....	219
<i>bicolorata</i> (Hecatera) .....	275	capucina (Ptilodon) .....	40, 102
<i>bicolorata</i> (P. rubiginata)		carbonaria (Semiothisa) .....	94, 197
bicruris (Hadena) .....	275	cardamines (Anthocaris) .....	35,
		45, 48, 83, 86, 98,	189

<i>cardui</i> ( <i>Cynthia</i> ) ...	4, 14, 22, 24, 36, 124, 192, 212, 229, 242
<i>carmelita</i> ( <i>Odontesia</i> ) ...	41, 59, 221
<i>carniolica</i> ( <i>S. onobrychis</i> )	
<i>carpinata</i> ( <i>Trichopteryx</i> ) .....	85,
	98, 168, 222
<i>castanea</i> ( <i>Xestia</i> ) ...	14, 90, 238, 273
<i>castanella</i> ( <i>Stigmella</i> ) .....	151
<i>castor</i> ( <i>Charaxes</i> ) .....	19
<i>castrensis</i> ( <i>Malacasoma</i> ) .....	218
<i>cecilia</i> ( <i>Pyronia</i> ) .....	46, 48, 51, 212, 230
<i>celerio</i> ( <i>Hippotion</i> ) .....	34
<i>celonica</i> ( <i>Ypthima</i> ) .....	56
<i>centaureata</i> ( <i>Eupithecia</i> ) .....	137
<i>centrago</i> ( <i>Atethmia</i> ) ...	70, 140, 215, 278
<i>cespitis</i> ( <i>Tholera</i> ) .....	138, 139, 275
<i>chalcites</i> ( <i>Chrysodeixis</i> ) .....	172
<i>chamomillae</i> ( <i>Cucullia</i> ) .....	163
<i>charactera</i> ( <i>A. epomidion</i> )	
<i>chariclea</i> ( <i>Clossiana</i> ) .....	82
<i>chenopodiata</i> ( <i>Scotopteryx</i> ) ...	14, 102, 115, 137
<i>chi</i> ( <i>Antitype</i> ) .....	70, 137, 277
<i>chilo</i> ( <i>Acraea</i> ) .....	23
<i>chloerata</i> ( <i>Chloroclystis</i> ) .....	26, 97, 98, 100, 215
<i>chriemhilda</i> ( <i>Eurephene</i> ) .....	20
<i>chrysippus</i> ( <i>Danaus</i> ) .....	56, 223, 242, 270
<i>chrysitis</i> ( <i>Diachrysia</i> ) .....	102, 283
<i>chrysorrhea</i> ( <i>Euproctis</i> ) .....	59
<i>cinctaria</i> ( <i>Cleora</i> ) .....	85
<i>cingulata</i> ( <i>Pyrausta</i> ) .....	234
<i>cinxia</i> ( <i>Melitaea</i> ) .....	45, 48, 189
<i>circe</i> ( <i>Brintesia</i> ) .....	50, 51, 209, 212
<i>circellaris</i> ( <i>Agrochola</i> ) .....	278
<i>cirsii</i> ( <i>Pyrgus</i> ) .....	213
<i>cissus</i> ( <i>Cupidopsis</i> ) .....	134
<i>cithaeron</i> ( <i>Charaxes</i> ) .....	19
<i>citrago</i> ( <i>Xanthia</i> ) .....	140
<i>citrana</i> ( <i>Thiodia</i> ) .....	235
<i>citrata</i> ( <i>Chloroclysta</i> ) ...	14, 70, 102
<i>citrinalis</i> ( <i>Hypercallia</i> ) .....	165
<i>clareae</i> ( <i>Utetheisa</i> ) .....	160
<i>clathrata</i> ( <i>Semiothisa</i> ) .....	164
<i>clavaria</i> ( <i>Larentia</i> ) .....	146, 163
<i>clavipalpis</i> ( <i>Caradrina</i> ) .....	140, 283
<i>clavis</i> ( <i>Agrotis</i> ) .....	33
<i>clavum</i> ( <i>Phasis</i> ) .....	179
<i>clelia</i> ( <i>Precis</i> ) .....	22
<i>cleopatra</i> ( <i>Gonepteryx</i> ) ...	1, 2, 3, 4, 46, 47, 48, 52, 212, 228
<i>cloanthe</i> ( <i>Catacroptera</i> ) .....	22
<i>defoliaria</i> ( <i>Erannis</i> ) .....	84, 183
<i>degenerana</i> ( <i>Nycteola</i> ) .....	52
<i>degeneraria</i> ( <i>Idaea</i> ) .....	2, 5
<i>deione</i> ( <i>Mellicta</i> ) .....	212
<i>demodocus</i> ( <i>Papilio</i> ) ...	224, 244, 269, 271
<i>demoleus</i> ( <i>Papilio</i> ) .....	56, 224, 242, 244, 269, 270
<i>dentaria</i> ( <i>Selenia</i> ) .....	14, 102

<i>depicta</i> ( <i>Aloeides</i> ) .....	253, 257
<i>deplana</i> ( <i>Eilema</i> ) .....	102, 116
<i>depuncta</i> ( <i>Eugnorisma</i> ) .....	43
<i>derasa</i> ( <i>H. pyritoides</i> )	
<i>derivalis</i> ( <i>Paracolax</i> ) .....	101
<i>designata</i> ( <i>Xanthorhoe</i> ) .....	70, 99
<i>dia</i> ( <i>Boloria</i> ) .....	51
<i>didyma</i> ( <i>Melitaea</i> ) ...	45, 48, 211, 212
<i>didymata</i> ( <i>Perizoma</i> ) .....	11, 70, 116
<i>diffinis</i> ( <i>Cosmia</i> ) .....	89, 90, 163
<i>diluta</i> ( <i>Cymatophorina</i> ) .....	59
<i>dimidiata</i> ( <i>Idaea</i> ) .....	102
<i>dinochares</i> ( <i>Virachola</i> ) .....	132
<i>diocles</i> ( <i>Virachola</i> ) .....	132
<i>diomus</i> ( <i>Spialia</i> ) .....	135
<i>diopolis</i> ( <i>Virachola</i> ) .....	132
<i>disa</i> ( <i>Erebia</i> ) .....	83
<i>dispar</i> ( <i>Lycaena</i> ) .....	68
<i>dissoluta</i> ( <i>Archanara</i> ) .....	59, 102
<i>distinctaria</i> ( <i>Eupithecia</i> ) .....	236
<i>ditrapezium</i> ( <i>Xestia</i> ) .....	88, 100
<i>diva</i> ( <i>Gorgyra</i> ) .....	135
<i>dodonea</i> ( <i>Drymonia</i> ) ...	86, 87, 88, 99
<i>dodoneata</i> ( <i>Eupithecia</i> ) .....	145
<i>dolabraria</i> ( <i>Plagodis</i> ) .....	101, 145
<i>clytia</i> ( <i>Chilasa</i> ) .....	56
<i>c-nigrum</i> ( <i>Xestia</i> ) ...	44, 73, 91, 140
<i>coelestissima</i> ( <i>Lysandra</i> ) ...	209, 213
<i>columbina</i> ( <i>Phalanta</i> ) .....	22
<i>comes</i> ( <i>Noctua</i> ) .....	14, 43, 70, 115, 140
<i>comma</i> ( <i>Hesperia</i> ) .....	83, 192, 213
<i>comma</i> ( <i>Mythimna</i> ) .....	100, 276
<i>complanata</i> ( <i>Eilema</i> ) .....	87, 88, 100, 163
<i>comus</i> ( <i>Artitropa</i> ) .....	136
<i>concinna</i> ( <i>Chloroclysta</i> ) .....	237
<i>confusa</i> ( <i>Hadena</i> ) .....	238, 275
<i>confusa</i> ( <i>Spialia</i> ) .....	135
<i>conicolana</i> ( <i>Cydia</i> ) .....	215
<i>conigera</i> ( <i>Mythimna</i> ) .....	276
<i>conjugata</i> ( <i>S. marginepunctata</i> )	
<i>conspicillaris</i> ( <i>Egira</i> ) .....	163
<i>constantinus</i> ( <i>Papilio</i> ) .....	244
<i>contigua</i> ( <i>Laconobia</i> ) ...	28, 34, 99
<i>contrarius</i> ( <i>Charaxes</i> ) .....	19
<i>convolvuli</i> ( <i>Agrius</i> ) ...	9, 25, 39, 58, 72, 95, 96, 116, 124
<i>coracina</i> ( <i>Psodos</i> ) .....	216
<i>coranus</i> ( <i>Cymothoe</i> ) .....	20
<i>cordigera</i> ( <i>Anarta</i> ) .....	94, 216, 274
<i>core</i> ( <i>Euplora</i> ) .....	56
<i>coridon</i> ( <i>Lysandra</i> ) .....	24, 51, 101, 138, 192, 193
<i>corinna</i> ( <i>Coenonympha</i> ) .....	46, 48
<i>cornella</i> ( <i>Argyresthia</i> ) .....	27
<i>coryli</i> ( <i>Colacasia</i> ) .....	86, 98, 283
<i>costaestrigalis</i> ( <i>Schrankia</i> ) ...	102, 146
<i>costalis</i> ( <i>Hypsopygia</i> ) .....	70
<i>cramera</i> ( <i>Aricia</i> ) .....	213, 232
<i>crassalis</i> ( <i>Hypena</i> ) .....	116
<i>crataegella</i> ( <i>Endonia</i> ) .....	219
<i>crataegella</i> ( <i>Stigmella</i> ) .....	76



	PAGE		PAGE
crataegi (Aporia) .....	212	eros (Polyommatus) .....	52
crataegi (Trichiura) .....	38, 59, 163	erosaria (Ennomos) .....	140, 146
crenata (Apamea) .....	13, 100, 116, 280	erynnis (Artitropa) .....	136
cribrella (Myelois) .....	145	erythrocephala (Conistra) .....	172
crinanensis (Amphipoea) .....	282	erythrogenella (Ectoedemia) .....	129
crina (Papilio) .....	56	escheri (Plebicula) .....	47, 48, 213
cristana (Acleris) .....	183	esculi (Nordmannia) ...	52, 213, 232
croceus (Colias) ...	4, 34, 48, 73, 139, 141, 212, 228	esebria (Acraea) .....	131
croesella (Adela) .....	54	etesipe (Charaxes) .....	19
cuculata (Catarhoë) .....	88	ethalion (Charaxes) .....	19
cucullina (Ptilodontella) .....	89	eucharis (Delius) .....	56
cursoria (Euxoa) .....	42	eunomia (Argynnis) .....	82
curtula (Clostera) .....	102, 163	euphorbiae (Acronicta) .....	216, 279
cydippe (A. adippe) .....		euphrosyne (Boloria) .....	37, 45, 48, 82, 96, 98, 189
cypricola (Maniola) .....	3, 4	eurutus (Pseudaxraea) .....	20
dahlia (Diarsia) .....	44	exclamationis (Agrotis) .....	42
damii (Acraea) .....	23	expallidata (Eupithecia) .....	60, 101, 235
damoetes (Lampides) .....	242	exsiccata (Tathorynchus) .....	172
damon (Agrodiaetus) .....	209, 213	exsoleta (Xylena) .....	277
daphne (Brenthis) .....	49, 50	extersaria (Ectropis) .....	87
daphnis (Meleageria) ...	51, 60, 209, 210, 213	exulans (Zygaena) .....	216
daplidice (Pontia) ...	1, 2, 4, 48, 212, 227	exulis (Apamea) .....	280
dardanus (Papilio) .....	244, 269	fabressei (Agrodiaetus) .....	209, 213
dariaves (Virachola) .....	132	fagana (Pseudoips) .....	87, 283
dasarada (Polydorus) .....	269	fagi (Hipparchia) ...	16, 51, 52, 53
decentella (Etainia) .....	121	fagi (Stauropus) .....	87, 99, 100
deceptor (Hypolimnas) .....	21	falsella (Catoptria) .....	219
decimalis (Tholera) .....	138	fascelina (Dasychira) .....	41
decolorella (Blastobasis) .....	27	fasciana (L. pygarga) .....	
dolorosa (Euchrysops) .....	134	fasciaria (Hylaea) .....	14
domestica (Cryphia) ...	70, 163, 279	fasciuncula (Oligia) .....	281
dorus (Coenonympha) .....	51, 213	fatuellus (Baoris) .....	136
dromedarius (Notodonta) ...	40, 70, 87, 100, 102, 137, 138	favicolor (Mythimna) .....	71
dromus (Spialia) .....	135	ferrago (Mythimna) .....	276
dryope (Eurytela) .....	21	ferrugalis (Udea) .....	95, 116
dubia (Hypolimnas) .....	21	ferrugata (Xanthorhoë) .....	14, 116
dubitata (Triphosa) .....	12	ferruginea (Pelopidas) .....	136
dulcella (Nepticula) .....	151	ferruginea (Rusina) .....	279
duplaris (Ochropacha) .....	87, 137	ferula (Satyrus) .....	51, 53
duponcheli (Leptidea) .....	51	festucae (Plusia) ...	28, 90, 163, 284
echerius (Abisara) .....	56	fidia (Pseudotergumia) .....	209, 210, 212, 230
efformata (Aplocera) .....	138	filipendulae (Nepticula) .....	151
egea (Polygonia) .....	51	fimbrialis (Thalera) .....	52
egeria (P. aegeria) .....		fimbriata (Noctua) .....	43, 90
egina (Acraea) .....	23	flammea (Panolis) .....	85, 275
elinguaria (Crocallis) .....	12	flammea (Senta) .....	59
elma (Gomalia) .....	135	flammealis (Endotricha) .....	170
elpenor (Deilephila) .....	34, 99, 100	flammeolaria (Hydrelia) .....	87, 99, 223
elymi (Photodes) .....	88	flavago (Gortyna) .....	90, 282
emortualis (Trisateles) .....	215, 238	flavicinctata (Entephria) ...	215, 235, 236
encedon (Acraea) .....	23	flavicornis (Achlya) .....	85, 97, 163, 238
epaea (Bematistes) .....	22	flesus (Tagiades) .....	134
epiphron (Erebia) .....	37, 236	flocciferus (Carcharodus) .....	52
epomidion (Apamea) .....	14, 145	florealis (Aporodes) .....	5
eponina (Acraea) .....	23	florella (Catopsilia) .....	196
equatorialis (Acraea) .....	23	florida (Diarsia) .....	235
eremita (Dryobotodes) .....	34, 163	floslactella (Nepticula) .....	75
ericella (Crambus) .....	236	fluctuata (Xanthorhoë) .....	14, 70
eroides (Polyommatus) .....	17		



	PAGE		PAGE
<i>fluctuosa</i> (Tetheella) .....	87, 100	<i>hecabe</i> (Eurema) .....	56
<i>forestan</i> (Coeliades) .....	134	<i>hecate</i> (Brenthis) .....	209, 212
<i>formosana</i> (Enarmonia) .....	217	<i>hecla</i> (Colias) .....	82
<i>formosana</i> (Lozotaenoides) .....	71	<i>hector</i> (Polydorus) .....	56
<i>foulquieri</i> (P. bellieri) .....		<i>helenia</i> (Troides) .....	56
<i>fragariella</i> (Nepticula) .....	151	<i>helle</i> (Lycaena) .....	83
<i>fraxini</i> (Catocala) .....	34	<i>helvola</i> (Agrochola) .....	115, 278
<i>freiia</i> (Argynnis) .....	82	<i>hepatica</i> (Polia) .....	274
<i>frigga</i> (Argynnis) .....	82	<i>hera</i> (E. quadripunctaria) .....	
<i>fritillarius</i> (Pyrgus) .....	213	<i>hierta</i> (Precis) .....	22
<i>fuciformis</i> (Hemaris) .....	39	<i>hippocastanaria</i> (Pachycnemis) ...	90
<i>fucosa</i> (Amphipoea) .....	71, 90	<i>hippocrates</i> (Everes) .....	134
<i>fulgurata</i> (Neptidopsis) .....	21	<i>hippotoë</i> (Lycaena) .....	83
<i>fuliginaria</i> (Parascotia) ...	28, 57, 92	<i>hirtaria</i> (Lycia) .....	85, 145
<i>fuliginosa</i> (Phragmatobia) .....	42	<i>hirundo</i> (Leptomyrina) .....	133
<i>fulvata</i> (Cidaria) .....	14, 101	<i>hispidaria</i> (Apocheima) .....	84, 120
<i>furcata</i> (Hydromena) .....	14, 70	<i>homeyeri</i> (Spindasis) .....	132
<i>furcifera</i> (Lithophane) .....	172	<i>hucherardi</i> (H. osseola) .....	
<i>furcula</i> (Harpyia) ...	40, 87, 102, 138	<i>humuli</i> (Hepialus) .....	223
<i>feruncula</i> (Mesoligia) .....	137	<i>hyale</i> (Colias) .....	15
<i>furva</i> (Apamea) .....	280	<i>hybnerella</i> (Stigmella) .....	77
<i>fuscantaria</i> (Ennomos) .....	90, 137, 140	<i>hylas</i> (Neptis) .....	56
<i>fusconebulosa</i> (Hepialus) .....	14, 217	<i>hylax</i> (Zizula) .....	134
<i>fuscovenosa</i> (Idaea) .....	99	<i>hyperantus</i> (Aphantopus) ...	38, 49, 191
<i>galathea</i> (Melanargia) ...	48, 192, 209, 212	<i>hypermnestra</i> (Ideopsis) .....	56
<i>galba</i> (Chilodes) .....	1, 5	<i>icarus</i> (Polyommatus) ...	36, 48, 83, 120, 137, 138, 192, 213, 232, 238
<i>galene</i> (Aterica) .....	20	<i>icteritia</i> (Xanthia) .....	278
<i>galenus</i> (Celaenorrhinus) .....	134	<i>idae</i> (U. pulchelloides) .....	
<i>galiata</i> (Epirrhoë) .....	14, 139	<i>idas</i> (Lycaeides) .....	83, 213
<i>gallii</i> (Hyles) .....	25, 28, 39, 58, 94, 95, 96, 116, 123, 124, 141, 146, 192, 221, 238, 247	<i>iduna</i> (Euphydryas) .....	83
<i>gamma</i> (Autographa) ...	14, 73, 91, 95, 100, 115, 116, 124, 139, 222, 284	<i>ignobilella</i> (Nepticula) .....	77
<i>garega</i> (Asterope) .....	21	<i>ilia</i> (Apatura) .....	50
<i>gei</i> (Nepticula) .....	151	<i>ilicis</i> (Nordmannia) .....	47, 48, 50, 52, 213, 232
<i>geminipuncta</i> (Archanara) ...	59, 90	<i>ilithyia</i> (Byblia) .....	21
<i>geronella</i> (Brachmia) .....	224	<i>imitaria</i> (Scopula) .....	146
<i>gigantella</i> (Schoenobius) .....	70	<i>immutata</i> (Scopula) .....	235
<i>glareosa</i> (Paradiarsia) ...	14, 44, 70, 115, 238	<i>impura</i> (Mythimna) .....	12, 138, 276
<i>glaucippe</i> (Hebomoia) .....	56	<i>incerta</i> (Orthosia) .....	85, 97, 275
<i>globulariae</i> (Adscita) .....	218	<i>incerta</i> (Pardaleodes) .....	136
<i>glyphica</i> (Euclidia) .....	34, 87	<i>indigata</i> (Eupithecia) .....	145
<i>gnoma</i> (Pheosia) .....	40, 102	<i>ino</i> (Brenthis) .....	53, 209, 212
<i>gothica</i> (Orthosia) ...	85, 97, 98, 276	<i>insignata</i> (Eupithecia) .....	28
<i>gracilis</i> (Orthosia) .....	98, 99, 214	<i>insignis</i> (Acraea) .....	23
<i>graminis</i> (Cerapteryx) .....	12, 275	<i>interjecta</i> (Noctua) ...	102, 115, 145
<i>griseata</i> (Timandra) .....	138	<i>interjectana</i> (Cnephlesia) .....	224
<i>griseella</i> (Trifurcula) .....	151	<i>interjectaria</i> (I. fuscovenosa) .....	
<i>griseola</i> (Eilema) .....	116	<i>interrogationis</i> (Syngrapha) ...	13, 25, 236, 284
<i>grossulariata</i> (Abraxas) ...	102, 137, 138, 199	<i>intricata</i> (Eupithecia) .....	223
<i>guderiana</i> (Charaxes) .....	19	<i>io</i> (Inachis) ...	14, 36, 188, 192, 212, 220, 221
<i>gueneeana</i> (Dichrorampha) .....	235	<i>iobates</i> (Cupidopsis) .....	134
<i>halterata</i> (Lobophora) .....	146	<i>iphioides</i> (Coenonympha) ...	209, 213
<i>harpagula</i> (Paleodrepana) ...	218, 219	<i>iphita</i> (Precis) .....	56
<i>harpax</i> (Axiocerses) .....	133	<i>ipsilon</i> (Agrotis) .....	14, 42, 91, 116, 139, 222
<i>hastata</i> (Rheumaptera) .....	87	<i>iris</i> (Apatura) .....	49, 50, 117, 191, 192
<i>hastiana</i> (Acleris) .....	238	<i>irregularis</i> (Hadena) .....	101
<i>haworthii</i> (Celaena) .....	13, 282	<i>irregularis</i> (Leucania) .....	223

irriguata ( <i>Eupithecia</i> ) .....	214
irrorella ( <i>Setina</i> ) .....	33
jacobaeae ( <i>Tyria</i> ) .....	42, 48
jahlusa ( <i>Charaxes</i> ) .....	19
janthina ( <i>Noctua</i> ) .....	14, 43, 115
jasius ( <i>Charaxes</i> ) ... 3, 4, 18, 46, 47, 48, 60, 222, 228	
jesous ( <i>Azanus</i> ) .....	133
johnstoni ( <i>Gorgyra</i> ) .....	136
jota ( <i>Autographa</i> ) .....	100, 284
jubata ( <i>Alcis</i> ) .....	89, 169
juniperata ( <i>Thera</i> ) .....	121
jurtina ( <i>Maniola</i> ) ... 14, 37, 45, 47, 48, 99, 101, 191, 192, 212, 230, 238	
kariakoffi ( <i>Neptis</i> ) .....	20
kituina ( <i>Spialia</i> ) .....	135
klugii ( <i>Euploia</i> ) .....	56
knysna ( <i>Zizera</i> ) .....	134, 211, 213
labradus ( <i>Zizeeria</i> ) .....	242
lacertinaria ( <i>Falcaria</i> ) .....	99, 102
lacunana ( <i>Olethreutes</i> ) .....	224
laetana ( <i>Ancylis</i> ) .....	218
laius ( <i>Libythea</i> ) .....	131
l-album ( <i>Mythimna</i> ) ... 73, 124, 139, 167	
lancealana ( <i>Bactra</i> ) .....	224
lanestris ( <i>Eriogaster</i> ) .....	33
lapponaria ( <i>Lycia</i> ) .....	85
lariciata ( <i>Eupithecia</i> ) .....	217
larydas ( <i>Anthene</i> ) .....	133
lasti ( <i>Anthene</i> ) .....	133
lasti ( <i>Charaxes</i> ) .....	18
lathonia ( <i>Argynnis</i> ) ..... 50, 212, 234	
latifasciana ( <i>Acleris</i> ) .....	224
latruncula ( <i>Oligia</i> ) .....	281
lavatherae ( <i>Carcharodus</i> ) ..... 17, 213	
leautieri ( <i>Lithophane</i> ) ... 29, 60, 239	
leda ( <i>Melanitis</i> ) .....	56
leda ( <i>Physcaenura</i> ) .....	18
legatella ( <i>Chesias</i> ) ..... 90, 116, 164	
lepida ( <i>H. perplexa</i> ) .....	
leporina ( <i>Acronicta</i> ) ... 87, 100, 223	
leucapennella ( <i>Caloptilia</i> ) .....	117
leucophaeria ( <i>Agriopis</i> ) ... 84, 97, 120, 183	
leucostigma ( <i>Celaena</i> ) ..... 137, 163, 282	
levana ( <i>Araschnia</i> ) .....	49
libatrix ( <i>Scoliopteryx</i> ) .....	14, 70
libeon ( <i>Coeliades</i> ) .....	134
lichenaea ( <i>Eumichtis</i> ) ... 73, 139, 239	
ligea ( <i>Erebia</i> ) .....	50
<i>lignata</i> ( <i>O. vittata</i> ) .....	
ligula ( <i>Conistra</i> ) .....	145, 183
ligustri ( <i>Craniophora</i> ) .....	34
ligustri ( <i>Sphinx</i> ) .....	88
limbalis ( <i>Uresiphita</i> ) .....	239
limniace ( <i>Danaus</i> ) .....	56
linearia ( <i>Cyclophora</i> ) ... 87, 115, 137	
lineata ( <i>Hyles</i> ) .....	172
lineola ( <i>Thymelicus</i> ) ..... 48, 88, 101, 221	
lingeus ( <i>Cacyreus</i> ) .....	133

lirtingensis ( <i>Precis</i> ) .....	56
literosa ( <i>Mesoligia</i> ) ... 101, 116, 137, 281	
lithoxylea ( <i>Apamea</i> ) .....	100, 280
litoralis ( <i>Mythimna</i> ) .....	34, 90
litura ( <i>Agrochola</i> ) .....	140, 278
liturata ( <i>Semiothisa</i> ) ... 100, 116, 223	
<i>livornica</i> ( <i>H. lineata</i> ) .....	
loniceræ ( <i>Zygaena</i> ) .....	100
lorisona ( <i>Virachola</i> ) .....	132
lota ( <i>Agrochola</i> ) .....	73, 278
lotrix ( <i>Utetheisa</i> ) .....	160
louisella ( <i>Etainia</i> ) .....	121
lubricipeda ( <i>Spilosoma</i> ) .....	42
lucens ( <i>Amphipoea</i> ) .....	282
lucernea ( <i>Standfussiana</i> ) ..... 14, 43, 57	
lucida ( <i>Actizera</i> ) .....	134
lucina ( <i>Hamearis</i> ) .....	86, 189
lucipara ( <i>Euplexia</i> ) .....	14, 280
lucretia ( <i>Pseudoacraea</i> ) .....	20
lecretioides ( <i>Pseudathyna</i> ) .....	20
luctuosa ( <i>Tyta</i> ) .....	34
luedersiana ( <i>Pammene</i> ) .....	197
lugens ( <i>Baoris</i> ) .....	136
<i>lunaria</i> ( <i>S. lunularia</i> ) .....	
lunosa ( <i>Omphaloscelis</i> ) ..... 73, 115, 140, 239	
lunularia ( <i>Selenia</i> ) ... 28, 87, 145, 219	
lunulata ( <i>Anthene</i> ) .....	133
lupina ( <i>Hyponephele</i> ) .....	3, 4
lupulinus ( <i>Hepialus</i> ) .....	14
luridata ( <i>Scotopteryx</i> ) .....	99
lurideola ( <i>Eilema</i> ) .....	41, 137
<i>lutea</i> ( <i>S. luteum</i> ) .....	
luteolaria ( <i>Sterrha</i> ) .....	14
luteum ( <i>Spilosoma</i> ) .....	99, 100
lutosa ( <i>Rhizedra</i> ) ... 73, 140, 145, 163, 283	
lutulenta ( <i>Aporophyla</i> ) ..... 116, 276	
lycaon ( <i>Hyponephele</i> ) ... 52, 53, 209, 212	
lychnidis ( <i>Agrochola</i> ) ..... 140, 239, 278	
machaon ( <i>Papilio</i> ) ..... 2, 4, 45, 46, 48, 52, 81, 96, 212, 227	
macilenta ( <i>Agrochola</i> ) .....	91, 278
mackenii ( <i>Acleros</i> ) .....	136
macularia ( <i>Pseudopanthera</i> ) .. 87, 94	
maculata ( <i>Sarangesa</i> ) .....	135
maera ( <i>Lasiommata</i> ) ... 3, 4, 51, 213	
malathana ( <i>Euchrysops</i> ) .....	134
malvae ( <i>Pyrgus</i> ) .....	189
malvoides ( <i>Pyrgus</i> ) ..... 48, 211, 213	
mamurra ( <i>Pseudochazara</i> ) ... 16, 222	
mannii ( <i>Pieris</i> ) .....	48
marдания ( <i>Eurypheue</i> ) .....	20
margaritata ( <i>Campaea</i> ) .....	101
margaritella ( <i>Catoptria</i> ) .....	234
marginaria ( <i>Agriopis</i> ) ... 84, 85, 120	
marginepunctata ( <i>Scopula</i> ) ... 5, 90, 139	
marginicolella ( <i>Nepticula</i> ) .....	78
maritimus ( <i>Chilodes</i> ) .....	88, 90

	PAGE
matuapa ( <i>Acraea</i> ) .....	23
matura ( <i>Thalpophila</i> ) .....	279
mauritalis ( <i>Hypsipygia</i> ) .....	114
medus ( <i>Orotiaena</i> ) .....	56
megacephala ( <i>Acronicta</i> ) .....	100
megea ( <i>Lasiommata</i> ) .....	3, 4,
14, 34, 48, 86, 138, 192, 213,	230
melanopa ( <i>Anarta</i> ) .....	94, 274
melicerta ( <i>Neptis</i> ) .....	21
memnon ( <i>Papilio</i> ) .....	271
mendica ( <i>Diaphora</i> ) .....	33
mendica ( <i>Diarsia</i> ) .....	14, 44, 236
menyanthidis ( <i>Acronicta</i> ) ...	13, 279
meolans ( <i>Erebia</i> ) .....	50
meridionalis ( <i>Ornithoptera</i> ) .....	110
mesomella ( <i>Cybosia</i> ) .....	88, 100
messaniella ( <i>Phyllonorycter</i> ) .....	168
methymna ( <i>Lepidochrysops</i> ) .....	257
meticulosa ( <i>Phlogophora</i> ) ...	14,
73, 280	
mi ( <i>Callistege</i> ) .....	87, 284
miata ( <i>Chloroclysta</i> ) .....	97, 164
micacea ( <i>Hydraecia</i> ) ...	91, 102,
140, 282	
micra ( <i>Teriomima</i> ) .....	131
microtheriella ( <i>Nepticula</i> ) .....	75
millefoliata ( <i>Eupithecia</i> ) .....	60
miniata ( <i>Mitochrista</i> ) ...	88, 100, 117
minima ( <i>Photodes</i> ) .....	100, 281
minima ( <i>Teriomima</i> ) .....	131
minimus ( <i>Cupido</i> ) .....	36, 86, 189
miniosa ( <i>Orthosia</i> ) .....	86, 214
mirza ( <i>Azanus</i> ) .....	133
missipus ( <i>Hypolimnas</i> ) .....	21, 56
monacha ( <i>Lymantria</i> ) .....	59, 102
monachella ( <i>Monopis</i> ) .....	28
moneta ( <i>Polychrysia</i> ) .....	163, 283
monoglyphia ( <i>Apamea</i> ) .....	14, 280
morpheus ( <i>Caradrina</i> ) .....	283
motozi ( <i>Sarangesa</i> ) .....	135
mucronellus ( <i>Donacula</i> ) ...	70, 145
muelleriella ( <i>Phyllonorycter</i> )	117, 206
multistrigaria ( <i>Colostygia</i> ) .....	85
munda ( <i>Orthosia</i> ) .....	34, 168
mundana ( <i>Nudaria</i> ) .....	41
munitata ( <i>Xanthorhoe</i> ) .....	236, 237
muralis ( <i>Cryphia</i> ) .....	137, 221
muricata ( <i>Idaea</i> ) .....	234
murinata ( <i>Minoa</i> ) .....	87
muscerda ( <i>Pelosis</i> ) .....	137, 235
musculosa ( <i>Oria</i> ) .....	25
mygindiana ( <i>Olethreutes</i> ) .....	216
myopaeformis ( <i>Conopia</i> ) .....	217
myricae ( <i>A. euphorbiae</i> )	
myrtilli ( <i>Anarta</i> ) .....	12, 90, 93,
98, 274	
nana ( <i>Hada</i> ) .....	274
nanata ( <i>Eupithecia</i> ) .....	12, 98, 115
napaea ( <i>Boloria</i> ) .....	82
napi ( <i>Pieris</i> ) .....	14, 35, 45, 48,
71, 82, 98, 101, 140, 210,	234, 244
nastes ( <i>Colias</i> ) .....	83
natalensis ( <i>Spindasis</i> ) .....	132

	PAGE
natalica ( <i>Acraea</i> ) .....	23
natalica ( <i>Precis</i> ) .....	22
neander ( <i>Andronymus</i> ) .....	136
nebulata ( <i>Euchoea</i> ) .....	88
nebulosa ( <i>Polia</i> ) .....	163
nemoralis ( <i>Agrotera</i> ) .....	165, 170
nemorella ( <i>Crambus</i> ) .....	235
neophron ( <i>Euphedra</i> ) .....	20
neoridas ( <i>Erebia</i> ) .....	245
nerii ( <i>Daphis</i> ) .....	34
nerissa ( <i>Huphina</i> ) .....	56
neurica ( <i>Archana</i> ) .....	89
ni ( <i>Trichoplusia</i> ) .....	172
nictitans ( <i>A. oculea</i> )	
nietneri ( <i>Cethosis</i> ) .....	56
nigra ( <i>Aporophyla</i> ) .....	73, 140, 276
nigricans ( <i>Euxoa</i> ) .....	42, 116
nina ( <i>Leptosia</i> ) .....	56
niobe ( <i>Argynnis</i> ) .....	212
niraus ( <i>Papilio</i> ) .....	244
nisella ( <i>Epinotia</i> ) .....	224
nitens ( <i>Nepticula</i> ) .....	151
nitens ( <i>P. bombycina</i> )	
nivescens ( <i>Lysandra</i> ) ...	210, 211, 213
noctuella ( <i>Nomophila</i> ) .....	116, 223
norna ( <i>Oeeis</i> ) .....	82
nostrodamus ( <i>Gegenes</i> ) .....	226
nubeculosa ( <i>Brachyonica</i> ) .....	85
nubilalis ( <i>Ostrinia</i> ) .....	24
nupta ( <i>Catocala</i> ) .....	137
nyassae ( <i>Fresna</i> ) .....	136
nyseus ( <i>Talica</i> ) .....	56
obductella ( <i>Oncocera</i> ) .....	57
obelisca ( <i>Euxoa</i> ) .....	42, 90
obesalis ( <i>Hypena</i> ) .....	90
oblonga ( <i>Apamea</i> ) .....	71, 89
obscuratus ( <i>Gnophos</i> ) .....	139
obsolete ( <i>Mythimna</i> ) .....	59
obstipata ( <i>Orthonama</i> ) ...	25, 26,
116, 163, 239	
occulta ( <i>Eurois</i> ) .....	57, 58, 96,
123, 273	
ocellata ( <i>Cosmorhoe</i> ) ...	12, 90, 139
ocellata ( <i>Smerinthus</i> ) .....	34
ochrascens ( <i>Deloneura</i> ) .....	131
ochrata ( <i>Idaea</i> ) .....	235
ochrearia ( <i>Aspitates</i> ) .....	139
ochroleuca ( <i>Eremobia</i> ) .....	89,
138, 146, 163, 218	
ocularis ( <i>Tethea</i> ) .....	87, 100, 223
oculea ( <i>Amphipoea</i> ) .....	138, 282
oditis ( <i>Leucochleana</i> ) .....	238
oleracea ( <i>Laconobia</i> ) .....	274
olivata ( <i>Colostygia</i> ) .....	11
oncaea ( <i>Acraea</i> ) .....	23
onobrychis ( <i>Zygaena</i> ) .....	165
onopordi ( <i>Pyrgus</i> ) .....	213
oo ( <i>Dicycla</i> ) .....	117
ophidicephalus ( <i>Papilio</i> ) .....	244
ophiogramma ( <i>Apamea</i> ) .....	88, 163
optilete ( <i>Vacciniini</i> ) .....	83
opima ( <i>Orthosia</i> ) .....	86
opuntiae ( <i>Dactylopius</i> ) .....	29
or ( <i>Tethea</i> ) .....	59, 87, 88, 100, 101



	PAGE		PAGE
orbona (Noctua) .....	43	philenor (Battus) .....	271
oreas (Lepidochrysops) .....	65	philippus (Hypolycaena) .....	132
orichalcea (Diachrysia) .....	172	phlaeas (Lycaena) .....	4, 11, 36, 83, 137, 189, 213, 231, 248, 264
orientalis (Euphaedra) .....	20	phlomidis (Spialia) .....	17
orithya (Precis) .....	22, 56	phoebe (Melitaea) .....	48, 212
ornitopus (Lithophane) .....	34, 183	phoeniceata (Eupithecia) .....	26, 29, 60
ortygia (Lepidochrysops) .....	65	phragmitidis (Arenostola) ..	88, 102, 116
osseola (Hydraecia) .....	138	picata (Alaena) .....	131
ostrina (Eublemma) .....	27	pierus (Aloeides) .....	257
ostrinaria (Idaea) .....	5	pigra (Clostera) .....	102
otregiata (Lampropteryx) .....	90	phillaana (Caprone) .....	135
ottomanus (Heodes) .....	17	philosaria (Apocheima) ...	84, 97, 120, 183, 214
oxyacanthae (Allophyes) .....	277	pinastri (Hyloicus) .....	88, 90
oxyacanthella (Stigmella) ...	77, 122, 151	pinaria (Bupalus) .....	100
oxytropis (Zygaena) .....	45, 48	pirithous (Syntarucus) .....	133, 211, 213, 231
palaeno (Colias) .....	82	pisi (Ceramica) .....	13, 275
pallene (Aphinolaus) .....	132	pisistratus (Coeliades) .....	134
pallens (Mythimna) ...	138, 140, 276	placidus (Acleros) .....	136
pallidella (Trifurcula) .....	148	plagiata (Aplocera) .....	48, 90, 118
pallustris (Athetis) .....	34, 216, 217	plagicolella (Nepticula) .....	76
palpina (Pterostoma) ...	41, 99, 100, 102	plantaginis (Parasemia) .....	14, 41
paludellus (Calomotropha) .....	70	plecta (Ochropleura) .....	12, 43, 73, 120
paludis (A. fucosa) .....		pleione (Charaxes) .....	19, 61
pamphilus (Coenonympha) ...	10, 37, 48, 86, 98, 189, 213, 230	plexippus (Danaus) .....	57, 72
pandora (Argynnis) ...	211, 212, 229	ploetzi (Acleros) .....	136
pandrose (Erebia) .....	83	plumbaria (S. luridata)	
paphia (Argynnis) ...	34, 49, 50, 88, 99, 191, 192, 212	plumigera (Ptilophora) ..	91, 140, 239
paphos (Glaucopsyche) .....	2, 5	pluto (Euptera) .....	20
papilionaria (Geometra) ...	101, 163	pneumonanthus (Stenoptilia) .....	165
paradisea (Abantis) .....	135	podalirius (Iphiclides) ...	48, 51, 212, 226
paradisea (Ornithoptera) .....	109	polaris (Boloria) .....	83
paradoxa (Chilasa) .....	269	polaris (Clossiana) .....	82
paradoxa (Stigmella) .....	76	politana (A. pulchellana)	
parasitella (Ephestia) .....	218	polychloros (Nymphalis) .....	36, 52, 210, 212
parhassus (Salamis) .....	21	polycommata (Trichopteryx) .....	84
parthenias (Archiearis) .....	97, 188	polymnestor (Papilio) .....	244
parthenoides (Mellicta) .....	209, 212	polytes (Papilio) .....	56, 244, 270
pascuella (Crambus) .....	235	pomona (Catopsilia) .....	56
pastinum (Lygephila) .....	100	popularis (T. decimalis)	
paulina (Appias) .....	56	populata (Eulithis) .....	11
pavonia (Saturnia) ...	13, 38, 94, 163	populeti (Orthosia) .....	84, 163
pectinataria (Colostygia) .....	11	populi (Laotoë) ...	39, 99, 102, 183
peculiaris (Lepidochrysops) .....	133	populi (Poecilocampa) .....	38, 140
pedaria (A. pilosaria)		porcellus (Deilephila) .....	28, 39
pellucida (Hipparchia) .....	3, 4	porphyrea (Lycophotia) ...	12, 44, 73, 87, 99, 115, 139, 163, 222, 236
pendularia (Cyclophora) .....	90	postvittana (Epiphyas) .....	224
perla (C. domestica)		potatoria (Philudoria) ...	13, 34, 102
perlucidalis (Eurrhyncha) .....	57	poterii (Nepticula) .....	151
perplexa (Hadena) .....	48	praecox (Ochropleura) .....	43, 90
persicariae (Melanchra) .....	34	prasina (Anaplectoides) .....	116, 219, 273
perspicua (Henotesia) .....	18	praelatella (Lampronia) .....	180
perversaria (Peribatodes) .....	5	prasinana (Bena) .....	100, 115
petasitis (Hydraecia) .....	137	prieuri (Chazara) .....	209, 212, 234
petraea (Acraea) .....	23		
petropolitana (Lasiommata) .....	83		
peucetia (Pentila) .....	131		
phaenareta (Euploea) .....	56		
phalanta (Phalanta) .....	56		
phicomone (Colias) .....	15		



	PAGE
<i>procellata</i> (Melanthia) .....	87
<i>promissa</i> (Catocala) .....	117
<i>promutata</i> (S. marginepunctata)	
<i>pronuba</i> (Noctua) ... 43, 70, 73,	115, 223
<i>pronubana</i> (Cacoecimorpha) .....	248
<i>protenor</i> (Papilio) .....	270
<i>proto</i> (Sloperia) .....	213
<i>protoclea</i> (Charaxes) .....	18
<i>protodice</i> (Pieris) .....	71, 244
<i>pruinata</i> (Pseudoterpna) .....	99, 101
<i>prunaria</i> (Angerona) .....	100
<i>prunata</i> (Eulithis) .....	89
<i>pruni</i> (Strymonidia) .....	16, 190
<i>pseudozeritis</i> (Chloroselas) .....	133
<i>psi</i> (Acronicta) .....	5, 99, 279
<i>pudibunda</i> (Dasychira) .....	99
<i>pudorella</i> (Acraea) .....	23
<i>pudorina</i> (Mythimna) ... 59, 99,	100
<i>pulchellana</i> (Argyrotaenia) .....	197
<i>pulchellata</i> (Eupithecia) .....	237
<i>pulchelloides</i> (Utetheisa) .....	160
<i>pulchrina</i> (Autographa) .....	284
<i>pulmentaria</i> (Chlorissa) .....	5
<i>pumilata</i> (G. rufifasciata)	
<i>pumilio</i> (Gegenes) .....	3, 5
<i>punctaria</i> (Cyclophora) .....	87
<i>punctatissima</i> (Pardopsis) .....	131
<i>punctiferalis</i> (Dichocrocis) .....	114
<i>punctinalis</i> (Serraca) .....	60, 87
<i>punicea</i> (Axiocerses) .....	133
<i>puppillaria</i> (Cyclophora) .....	25, 239
<i>purpurascens</i> (Aslauga) .....	131
<i>pusaria</i> (Cabera) .....	138
<i>pusillata</i> (Eupithecia) .....	14
<i>pustulata</i> (C. bajularia)	
<i>putnami</i> (Plusia) .....	235, 284
<i>putrescens</i> (Mythimna) .....	89
<i>putris</i> (Axylia) .....	43
<i>pygarga</i> (Lithacodia) .....	87, 100
<i>pygmaea</i> (Eupithecia) .....	216
<i>pygmaeola</i> (Eilema) .....	101
<i>pygmaia</i> (Photodes) .....	90, 102, 281
<i>pylades</i> (Graphium) .....	269
<i>pyraliata</i> (Eulithis) .....	99
<i>pyralina</i> (Cosmia) .....	163
<i>pyramidea</i> (Amphipyra) .....	138
<i>pyranthe</i> (Catopsilia) .....	56
<i>pyritoides</i> (Habrosyne) .....	100, 115
<i>pythodorus</i> (Charaxes) .....	19
<i>quadra</i> (Lithosia) .....	52, 116
<i>quadrifasiata</i> (Xanthorhoë) ... 88,	146
<i>quadripunctaria</i> (Euplagia) .....	51
<i>quercifolia</i> (Gastropacha) .....	163
<i>quercifoliae</i> (Ectoedemia) ... 108,	147, 208
<i>quercifoliella</i> (Phyllonorycter) ... 206	
<i>quercinaria</i> (Ennomos) .....	138, 139
<i>quercus</i> (Lasiocampa) ... 13, 38,	89, 94
<i>quercus</i> (Quercusia) ... 3, 4, 52,	53, 117, 191, 211, 213
<i>quickelbergei</i> (Lepidochrysops) ... 65	
<i>quinquella</i> (Ectoedemia) ... 130, 148	

	PAGE
<i>quirina</i> (Acraea) .....	23
<i>rabbaiae</i> (Acraea) .....	22
<i>rapae</i> (Pieris) ..... 4, 11, 35, 45,	48, 71, 98, 212, 227, 244
<i>ravida</i> (Spaelotis) ... 88, 89, 90,	163
<i>recens</i> (Orgyia) .....	215
<i>rectangulata</i> (Chloroclystis) .....	217
<i>rectilinea</i> (Hyppa) .....	280
<i>reducta</i> (Limenitis) ..... 2, 3, 4,	46, 48, 212
<i>regiana</i> (Pammene) .....	215
<i>remissa</i> (Apamea) .....	281
<i>repandaria</i> (Epione) .....	70
<i>repandata</i> (Alcis) ... 12, 99, 100,	101, 116, 223
<i>resinella</i> (Petrova) .....	216
<i>reticulatum</i> (Eustroma) .....	235
<i>revayana</i> (Nycteola) .....	34, 163
<i>rhamni</i> (Gonepteryx) ... 86, 97,	98, 144, 188, 212, 228
<i>rhododactyla</i> (Cnaemidophorus) ... 165	
<i>rhomboidaria</i> (Peribatodes) ... 48,	70, 101
<i>ridens</i> (Polyplocia) ..... 98, 117,	163
<i>ripertii</i> (Agrodiaetus) .....	51
<i>rivularis</i> (Hadena) .....	275
<i>roboraria</i> (Boarmia) .....	100
<i>roborella</i> (Stigmella) .....	103, 153
<i>robustana</i> (Bactra) .....	70
<i>rogersi</i> (Neptis) .....	20
<i>rogersi</i> (Telipna) .....	131
<i>rosimon</i> (Castalius) .....	56
<i>roxelana</i> (Kirinia) .....	4
<i>ruberata</i> (Hydriomena) .....	238
<i>rubi</i> (Callophrys) ..... 36, 48, 83,	86, 189, 233
<i>rubi</i> (Diarsia) .....	14, 44
<i>rubi</i> (Macrothylacia) ..... 13, 38,	94
<i>rubiginata</i> (Plemyria) .....	100
<i>rubiginata</i> (Scopula) .....	70, 88
<i>rubiginea</i> (Conistra) .....	98, 168
<i>rubivora</i> (Ectoedemia) .....	130
<i>rubicollis</i> (Atolmis) .....	34, 224
<i>rubricosa</i> (Cerastis) ..... 85, 98,	168, 273
<i>rufa</i> (Coenobia) .....	102
<i>rufaria</i> (Idaea) .....	51
<i>ruficapitella</i> (Stigmella) ..... 103,	153
<i>ruficornis</i> (Drymonia) .....	98
<i>rufifasciata</i> (Gymnoscelis) ..... 5,	14
<i>rumicis</i> (Acronycta) ... 14, 138,	279
<i>rupicapraria</i> (Theria) .....	183, 214
<i>rossiae</i> (Agapetes) .....	209, 212
<i>rutilana</i> (Aethes) .....	165
<i>sabadius</i> (Eagris) .....	135
<i>saclava</i> (Neptis) .....	20
<i>sacraria</i> (Rhodometra) ... 17, 24,	96, 116, 124, 146
<i>safitza</i> (Mycalasis) .....	18
<i>sagittata</i> (Perizoma) .....	137
<i>salicata</i> (Coenotephria) .....	11
<i>salicis</i> (Leucoma) .....	33, 163
<i>salomonis</i> (Utetheisa) .....	160
<i>samiatella</i> (Stigmella) .....	103, 151

	PAGE
sannio (Diacrisia) .....	41, 48
satis (Acraea) .....	22
satura (Blepharita) .....	34
saucia (Peridroma) .....	34, 116
scabriuscula (Dypterygia) ...	34, 87, 88
scipio (Erebia) .....	49
scolopacina (Apamea) .....	88, 163
scopigera (Bembecia) .....	219
scutosa (Protoschinia) .....	34
secalis (Mesapamea) .....	14, 70, 281
segetum (Agrotis) .....	42, 73, 90
sejuncta (Coeliades) .....	134
selene (Boloria) .....	11, 37, 82, 87, 98, 99, 100, 189
semele (Hipparchia) .....	11, 37, 51, 137, 138, 190, 192, 209, 212
semiargus (Cyaniris) .....	83, 96, 213
semibrunnea (Lithophane) .....	163
semirubella (Onocera) .....	71
senex (Thumatha) .....	59, 88
serella (Nepticula) .....	151
seriata (Idaea) .....	116
sericealis (Rivula) .....	145
sericopeza (Etainia) .....	121, 151
serpentata (Neolucia) .....	245
serratulæ (Pyrgus) .....	213
sertorius (Spialia) .....	52, 213
sexalata (Pterapherapteryx) ..	100, 223
sexstrigata (Xestia) ...	115, 137, 273
sichela (Petrelaea) .....	133
sifanica (Boloria) .....	82
signaria (Semiothisa) .....	195
silaceata (Ecliptoptera) .....	70, 137
silas (Argiolaus) .....	132
silenus (Epamera) .....	132
similella (Microthria) .....	117
similis (Danaus) .....	56
similis (Euproctis) .....	34, 102
simulans (Rhyacia) ...	25, 28, 33, 89, 163, 237
sinapis (Leptidea) ...	45, 48, 50, 81, 86, 98, 189, 192, 212, 227
sintenis (Pseudochazara) .....	16
smilax (Terias) .....	242
sobrina (Paradiarsia) ...	44, 216, 236
sobrinata (E. pusillata)	
solidaginis (Lithomoia) .....	59, 277
sordens (Apamea) .....	281
sororiata (Carsia) .....	235
sparganii (Archana) .....	90
sparsata (Anticollis) .....	102
sphendamni (Etainia) .....	121
sphinx (Brachionycha) .....	184
spini (Strymonidia) .....	52, 53, 213
spinosella (Ectoedemia) .....	79
sponsa (Catocala) .....	117
stabilis (Orthosia) .....	85, 275
statices (Adscita) .....	87
statilinus (Hipparchia) ..	210, 211, 212
stephensiana (Cnephassia) .....	224
stellata (Astictopterus) .....	135
stellatarum (Macroglossum) ..	28, 39, 58, 222

	PAGE
straminea (Mythimna) .....	89
strataria (Biston) ...	97, 98, 168, 222
striata (Spiris) .....	46
strigilis (Oligia) .....	281
strigillaria (Perconia) .....	98
strobilella (Cydia) .....	215
suasa (Laconobia) ...	34, 88, 90, 137, 223
subbimaculella (Ectoedemia) ..	108, 147
suberivora (Stigmella) ..	103, 129, 153
subflavidus (Gorgyra) .....	135
subpunctata (Teriomima) .....	131
subsericeata (Idaea) .....	48
succedana (Cydia) .....	224
suspecta (Parastichtis) .....	89, 278
svenssoni (Stigmella) ...	103, 151, 153
sylvata (Abraxas) .....	87
sylvata (Hydrelia) .....	218, 219
sylvestris (Thymelicus) ..	48, 213, 221
sylvina (Hepialus) .....	138, 139, 217
syriaca (Hipparchia) .....	1, 3, 4, 16
syringaria (Apeira) .....	146
taeniatum (Perizoma) ..	219, 234, 235
tages (Erynnis) ..	35, 52, 86, 189, 210, 213
tantillaria (Eupithecia) .....	146
tarsipennalis (Polypogon) .....	100
telecanus (S. pirithous)	
temerata (Lomographa) .....	99, 101
templi (Dasypolia) .....	276
tenebrata (Panemeria) .....	87
tenerana (Epinotia) .....	224
tengströmi (Nepticula) .....	151
tenuiata (Eupithecia) .....	102, 219
tere (Precis) .....	22
ternata (Scopula) .....	12, 235
terpsichore (Acraea) .....	23
testacea (Luperina) ...	102, 138, 238, 282
testata (Eulithis) .....	11, 102
tetralunaria (Selenia) ...	102, 138, 168
thalassina (Lacanobia) .....	274
theobene (Cymothoe) .....	19
theophrastus (Tarucus) .....	196
thero (Phasis) .....	177
thersites (Plebicula) .....	213
thore (Clossiana) .....	82
thrax (Achlyodes) .....	2, 5
thyra (Aloëda) .....	253
tiberius (Euxanthe) .....	18
tithonus (Pyronia) ..	101, 191, 212, 272
tityrus (Lycaena) .....	52
tityrus (Hemaris) .....	39
togata (Xanthia) .....	278
tormentillella (Nepticula) .....	151
torminalis (Stigmella) .....	151
tragopogonis (Amhipyra) .....	279
transversa (Eupsilia) ...	163, 183, 277
transversata (Philereme) .....	221
trapezina (Cosmia) .....	70, 138, 280
tremula (Pheosia) .....	40, 100, 102
trepida (P. anceps)	
triangulum (Xestia) .....	44, 115

tridactylus (Pterophorus) .....	58
tridens (Acronicta) .....	145
trifolii (Dicestra) .....	90, 274
trifolii (Lasiocampa) .....	90
trigemina (Abrostola) .....	219
trigeminata (Idaea) .....	100
trigonophora (Neptis) .....	20
trimeni (Lepidochrysops) .....	257
tripartita (Unca) .....	48
triplasia (Abrostola) .....	284
tripunctaria (Eupithecia) .....	137
trisignaria (Eupithecia) .....	219
tristata (Epirrhoë) .....	14, 87
tritici (Euxoa) .....	42, 88, 90
trochilus (Chilades) .....	3, 5, 134
truncata (Chloroclysta) .....	14, 140, 237
trux (Agrotis) .....	89
tullia (Coenonympha) ...	16, 38, 190, 191, 234
tumidana (Acrobasis) .....	117
typhae (Nonagria) ..	59, 90, 102, 163, 283
typica (Naenia) .....	273
ulmariae (Nepticula) .....	151
ulmi (S. ulmiphaga)	
ulmicola (S. ulmivora)	
ulmifoliae (S. ulmivora)	
ulmiphaga (Stigmella) .....	150, 151
ulmivora (Stigmella) .....	149
ulula (Dyspresta) .....	45, 48
umbra (Pyrrhia) .....	34, 163
umbratica (Cucullia) ...	99, 163, 276
unangulata (Euphyia) ...	87, 88, 100, 163
unanimis (Apamea) .....	163, 281
uncella (Ancyliis) .....	216
undulata (Rheumaptera) ...	146, 164
unguicella (Ancyliis) .....	216
unipuncta (Mythimna) .....	72
urticae (Aglais) ..	14, 36, 82, 86, 139, 188, 192, 193, 212, 220
usambara (Hypolimnas) .....	21
vaccinii (Conistra) ..	84, 85, 183, 278
valerianata (Eupithecia) .....	215
varanes (Charaxes) .....	18
varia (L. porphyrea)	
venata (Ochlodes) ...	14, 48, 213, 221
venosa (S. albovenosa)	
venosata (Eupithecia) .....	238
venustula (Elaphria) .....	60
verbascella (Nothris) .....	165
verbasci (Cucullia) .....	163
versicolor (Oligia) .....	145
versicolora (Endromis) .....	38
vespiformis (Synanthedon) .....	146
vestigialis (Agrotis) ..	14, 42, 88, 90
vetusta (Xylena) ..	13, 85, 89, 116, 145, 236, 277
victoriae (Spindasis) .....	132
villica (Arctia) .....	45, 48
viminalis (Cleoceris) .....	276
vimineticola (Nepticula) .....	151
vinula (Cerura) .....	40
viola (Charaxes) .....	19

violae (Telchinia) .....	56
violetta (Charaxes) .....	19
viretata (Acasis) .....	60, 102
virgaureae (Lycaena) .....	17
viridaria (Phytometra) .....	14
vitellina (Mythimna) .....	24, 96, 124
vittata (Orthonama) .....	17, 90, 137
vulpinaria (Idaea) ..	2, 5, 48, 218, 258
wakefieldi (Euxanthe) .....	18, 223
w-album (Strymonidia) .....	59, 117
w-latinum (Laconobia) .....	87
xanthographa (Xestia) ...	14, 73, 115, 137, 273
xerampelina (A. centrago)	
xuthus (Papilio) .....	270
xylostella (Plutella) .....	116
ypsillon (Enargia) .....	34, 73
zapateri (Erebia) .....	210, 245
zebra (Spialia) .....	135
zetes (Acraea) .....	23
ziczac (Eligmodonta) ...	40, 100, 102
zollikoferi (Luperina) .....	34, 172
zonata (Acraea) .....	22
zoolina (Charaxes) .....	19

#### ACARINA

Amblydromella .....	141
Amblyseius cucumeris .....	141, 143
fallacis, finlandicus,	
largoensis, ovalis .....	143
Cydnodromus .....	141
Cydnoseius .....	141
Hemipteroseius .....	140-3
Indodromus .....	142-3
Indoseius .....	142-3
Oligonychus magniferus .....	141
Phytoseius macropilis .....	143
Typhlodromips .....	141
Typhlodromus .....	141-3
bakeri, rhenanus .....	143

#### COLEOPTERA

Chrysolina cerealis .....	165
Cionus alauda, hortulanus,	
tuberculosis .....	184-8, 265-8
longicollis .....	266, 267, 268
olens .....	268-9
scrophulariae .....	187-8, 266-8
thapsi .....	267, 268
Cleopus pulchellus .....	185-8, 265-8
Omopron limbatum .....	165
Stereonychus fraxini .....	269

#### DERMAPTERA

Anechura asiatica, bipunctata,	
feae, nayarae, zubovskii .....	91
Homotages .....	91
Skalistes lucasi .....	6-8, Pl.1
linsleyi, smithi, vara .....	8

#### DIPTERA

Bombylius discolor .....	248
Brachyopa sp. .....	246
Callicera spinolae .....	93
Chaetosa .....	157
punctipes .....	154
Cheilosia (nomencl.) .....	92
sahlbergi* .....	193-4, Pl.XV



<i>Cheilotrichia cinerascens</i> .....	241
<i>Coniosternum tinctinervis</i> .....	154
<i>Cordilura</i> .....	157
<i>Cosmetopus bergrothi, fulvipes,</i> <i>longus</i> .....	155
<i>dentimanus*</i> .....	154-8
<i>Cylindrotoma distinctissima</i> .....	241
<i>Delina</i> .....	157
<i>Dicranomyia autumnalis, chorea,</i> <i>didyma</i> .....	240
<i>Dicranota bimaculata</i> .....	240
<i>guerini</i> .....	239, 240
<i>subtilis</i> .....	241
<i>Dolichopeza albipes</i> .....	241
<i>Erioptera diuturna, trivialis, vicina</i> .....	240
<i>fuscipennis</i> .....	240, 241
<i>lutea f. taeniolata</i> .....	241
<i>pilipes</i> .....	197-8, 240
<i>Fannia sp.</i> .....	246
<i>Gimnomera</i> .....	157
<i>Gonomyia simplex</i> .....	241
<i>tenella</i> .....	240
<i>Helius pallirostris</i> .....	240
<i>Limnophila apicata, maculata,</i> <i>nemoralis, submarmorata</i> ...	241
<i>ferruginea</i> .....	240, 241
<i>Limonia chorea, modesta</i> ...	240, 241
<i>morio, ventralis</i> .....	240
<i>didyma, duplicata, flavipes,</i> <i>fusca, macrostigma, mitis f.</i> <i>lutea, nubeculosa, stigma,</i> <i>stigmatica, tripunctata</i> .....	241
<i>Lipsothrix remota</i> .....	241
<i>Microprosopa</i> ... ..	154-7
<i>haemorrhoidalis, heteromy-</i> <i>zina</i> .....	154-5
<i>pallidicauda</i> .....	154, 156-7
<i>Molophilus ater</i> .....	239, 240
<i>griseus, obscurus, pleuralis</i> ...	240
<i>pusillus</i> .....	241
<i>Myiatropa florea</i> .....	246
<i>Nephrotoma appendiculata</i> ...	240, 241
<i>cornicina, 4-striata</i> .....	240
<i>flavescens, quadrifaria</i> .....	241
<i>Norellia spinipes</i> .....	154
<i>Ormosia hederæ, pseudosimilis</i> ...	240
<i>nodulosa</i> .....	241
<i>Paradelphomyia ecalcarata</i> .....	241
<i>Pedicia immaculata</i> .....	240, 241
<i>occulta, rivosa, straminea</i> ...	241

<i>Phaonia exoleta</i> .....	246
<i>Pogonota</i> .....	157
<i>Scatophaga</i> .....	157
<i>Scoliaphleps ustulata</i> .....	154
<i>Spaziphora (Spathiphora)</i> .....	157
<i>Sylvicola fenestralis</i> .....	240, 241
<i>punctata</i> .....	241
<i>Tipula czizeki, lateralis, mar-</i> <i>morata, oleracea, pagana,</i> <i>solstitialis</i> .....	240
<i>lunata</i> .....	124-5
<i>fulvipennis, meigeni, palu-</i> <i>dosa, rufina, scripta, signata,</i> <i>variicornis</i> .....	241
<i>staegeri, varipennis,</i> <i>vittata</i> .....	240, 241
<i>subnodicornis</i> .....	238, 240
<i>Trichocera hiemalis, relegationis</i> .....	240
<i>Trichopalpus</i> .....	157
<i>Tricyphona immaculata</i> .....	240
<i>Trimicra</i> .....	198
<i>Ula mollissima</i> .....	241

**HEMIPTERA**

<i>Callicorixa praeusta</i> .....	243
<i>Cicadetta montana</i> .....	165
<i>Corixa affinis, punctata</i> .....	243
<i>Geotomus punctulatus</i> .....	165
<i>Gerris odontogaster</i> .....	243
<i>Gonocerus acuteangulatus</i> .....	165
<i>Hebrus ruficeps</i> .....	243
<i>Hesperocorixa castanea, linnei</i> ...	243
<i>Hydrometra stagnorum</i> .....	243
<i>Microvelia reticulata</i> .....	243
<i>Nepa cinerea</i> .....	243
<i>Notonecta glauca, obliqua</i> .....	243
<i>Plea leachii</i> .....	243
<i>Sigara nigrolineata, scotti, semi-</i> <i>striata, sternalis</i> .....	243
<i>Velia sp.</i> .....	243

**HYMENOPTERA**

<i>Andricus kollari, lignicola*</i> .....	158-9
<i>corruptrix</i> .....	159
<i>Mesopobus tibialis</i> .....	159

**ODONATA**

<i>Anax imperator</i> .....	74
<i>Hemianax ephippiger</i> .....	73
<i>Macrodiplex cora</i> .....	74
<i>Mecistogaster</i> .....	6
<i>Orthetrum sabinum</i> .....	74
<i>Pantala flavescens</i> .....	53-4
<i>Tholymis tillarga</i> .....	74

















SMITHSONIAN INSTITUTION LIBRARIES



3 9088 00908 7040